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AUTHORITY

**FAA ltr, 2 Jul 1973**

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PHASE III  
CONTRACT

SUPERSONIC TRANSPORT DIV

SEPTEMBER 6 1966

06A10401-1

Phase III - Proposal  
Supersonic Transport Development Program

BOEING MODEL 2707

## PHASE III CONTRACT.

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11 6 Sep 1966  
13 131 P

9 Proprietary rept.

15 FA-SS-66-5 ✓

Prepared for  
FEDERAL AVIATION AGENCY  
Office of Supersonic Transport Development Program

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"THIS DOCUMENT CONTAINS SENSITIVE, COMPETITIVE, AND PROPRIETARY DATA, AND IS NOT TO BE REPRODUCED OR RELEASED OUTSIDE OF YOUR ORGANIZATION OR USED FOR ANY PURPOSE OTHER THAN SUPERSONIC TRANSPORT EVALUATION WITHOUT THE WRITTEN PERMISSION OF EITHER THE FEDERAL AVIATION AGENCY, OFFICE OF SUPERSONIC TRANSPORT DEVELOPMENT, ATTENTION: SS-30, OR THE BOEING COMPANY, SUPERSONIC TRANSPORT DIVISION, ATTENTION: CONTRACT ADMINISTRATION."

THE BOEING COMPANY  
SUPERSONIC TRANSPORT DIVISION

702 097

M. E. BRISLAWN

ISSUE NO. 1 38

3

## FOREWORD

This document contains the contract proposed by The Boeing Company for Phase III of the United States Supersonic Transport Development Program.

FEDERAL AVIATION AGENCY NEGOTIATED CONTRACT					CONTRACT NO. FA-SS-67-
CONTRACT TYPE <input type="checkbox"/> FIRM FIXED PRICE <input type="checkbox"/> FIXED PRICE REDETERMINABLE <input checked="" type="checkbox"/> OTHER (Specify) Cost Share		<input type="checkbox"/> FIXED PRICE INCENTIVE <input type="checkbox"/> COST PLUS FIXED FEE		DATE OF CONTRACT January 1, 1967 NEGOTIATED PURSUANT TO 41 USC 252(c) (11)	
ISSUING OFFICE (Name and Address) Federal Aviation Agency Office of Supersonic Transport Development 800 Independence Avenue SW Washington, D.C. 20553			CONTRACTOR (Name and Address) The Boeing Company P.O. Box 3733 Seattle, Washington 98124		
CONTRACT FOR Development of Supersonic Transport Aircraft - Phase III			AMOUNT Estimated Cost \$622,826,000.00		
DELIVERY F. O. B.	DESTINATION <input checked="" type="checkbox"/> OTHER (See Schedule)	DISCOUNT TERMS	MAIL INVOICES TO IN quintuplicate to: Federal Aviation Agency, AU-10 800 Independence Avenue SW Washington, D.C. 20553		
TIME OF DELIVERY See Schedule.					
FURNISH TO (Name and Address) See Schedule.			REQ. NO. - ACCOUNTING AND APPROPRIATION DATA CSAD 69 X 1358 PRN		
TYPE OF BUSINESS (Check appropriate box(es) in accordance with representation made by contractor in his proposal)					
INDIVIDUAL <input checked="" type="checkbox"/>	JOINT VENTURE	PARTNERSHIP	SMALL BUSINESS	LABOR SURPLUS AREA CONCERN	
X CORPORATION, INCORPORATED IN THE STATE OF <b>Delaware</b>					
FOR SUPPLIES ONLY:		REGULAR DEALER	MANUFACTURER		
<p>The United States of America (hereinafter called the Government), represented by the Contracting Officer executing this contract, and the individual, partnership, joint venture, or corporation named above (hereinafter called the Contractor), mutually agree to perform this contract in strict accordance with the Schedule and the General Provisions identified below, and the specifications, drawings, and conditions enumerated in the Schedule or identified below. If there are inconsistencies between the Schedule and the General Provisions and any specification, drawing, or other condition, the Schedule and the General Provisions shall control. If there are inconsistencies between the Schedule and the General Provisions, the Schedule shall control.</p> <p>The Contractor represents (a) that he <u>  </u> has, <u>  </u> X has not, employed or retained any company or person (other than a full-time bona fide employee working solely for the Contractor) to solicit or secure this contract, and (b) that he <u>  </u> has, <u>  </u> X has not, paid or agreed to pay any company or person (other than a full-time bona fide employee working solely for the Contractor) any fee, commission, percentage or brokerage fee, contingent upon or resulting from the award of this contract; and agrees to furnish information relating to (a) and (b) above as requested by the Contracting Officer. Priority Rating: DX-A-1.</p>					
In witness whereof, the parties hereto have executed this contract as of the date entered above.					
NAME OF CONTRACTOR <b>The Boeing Company</b>			UNITED STATES OF AMERICA		
BY (Signature)		DATE <b>Sept. 6, 1966</b>	BY (Signature of the Contracting Officer)		DATE
TYPED NAME <b>William, M. Allen</b>			TYPED NAME		
TITLE <b>President</b>			TITLE		

## CONTRACT FOR PHASE III

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SCHEDULE

**ARTICLE I. GENERAL**

The work under this contract is Phase III of the program for the development of the United States' Supersonic Transport (SST) Aircraft. Under this phase, the Contractor shall continue the design work and testing begun under earlier phases of the SST Program and shall develop, fabricate, and test two prototype aircraft. This work shall include an aggregate one hundred (100) hours of flight test of the prototype aircraft.

**ARTICLE II. STATEMENT OF WORK**

The Contractor shall perform, in accordance with the terms of this contract, the Statement of Work set forth in Exhibit A, attached to this contract.

**ARTICLE III. COMPLETION OF WORK**

All work hereunder shall be completed on or before December 31, 1970.

**ARTICLE IV. CONSIDERATION AND PAYMENT**

**A. Payment**

1. The total estimated cost for performance of this contract is \$622,826,000.00
2. The Contractor shall also be credited with a fee of \$62,282,600.00 as follows: The fee shall not be paid, but shall be credited against the Contractor's cost share only to the extent that the Contractor incurs allowable costs hereunder. The amount of such fee credit, with each payment to the Contractor shall bear the same ratio to the total fee as the allowable incurred costs for which the payment is made bears to the total contract estimated cost.
3. Except as may be otherwise provided herein, payment of the Contractor's costs shall be made in accordance with the clause of the General Provisions entitled "Allowable Costs, Fixed Fee and Payment" and in accordance with Subpart 1-15.2 of Part 1-15 of the Federal Procurement Regulations as in effect on the date of this contract; provided that all allowable costs hereunder shall be shared between the Contractor and the Government on the following basis: no more than eighty percent (80%) to be paid by the Government and no less than twenty percent (20%) to be paid by the Contractor, subject to the provisions of this Article IV.
4. The aforesaid cost sharing arrangement shall apply only until the incurred allowable costs are equal to the total estimated cost of the contract. To the extent the Government funds a cost overrun in excess of the total estimated contract cost, all such allowable overrun costs shall be shared between

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the Contractor and the Government on the following basis: no more than seventy-five percent (75%) to be paid by the Government and no less than twenty-five percent (25%) to be paid by the Contractor with no fee credit.

5. The Contractor shall not be reimbursed or credited hereunder for any cost incurred prior to the date of this contract; except as provided in Article IV.B below for payment of all or part of the Contractor's cost share under this or previous contracts in the event this contract is terminated, and further that, in accordance with the provisions of Article VI(c) of Contract FA-SS-66-5, a credit shall be made toward the Contractor's share under each monthly voucher, until the Contracting Officer determines that the approximate total credit due the Contractor under that Article has been paid. Following final payment under Contract FA-SS-66-5, an appropriate adjustment of the amounts hitherto credited the Contractor hereunder shall be made to reflect the exact credit due the Contractor. Notwithstanding any other provision of this contract, except said Article IV.B below, the Government's liability hereunder shall not exceed eighty percent (80%) of the total allowable costs incurred plus appropriate amounts credited for fee, and for credit due under Phase II-C Contract FA-SS-66-5 in accordance with this paragraph.

**B. Refund of Cost Sharing\***

**1. Termination for Convenience of the Government**

If the Government terminates this contract for its convenience, the Contractor shall be refunded its share of allowable costs, without interest, as follows:

(a) all of its share of allowable costs under Contracts FA-SS-64-4, FA-SS-65-20, and FA-SS-66-5; and

(b) all of its share of allowable costs under this contract, less allocable fee credit.

**2. Termination for Default**

If the Government terminates the contract because the Contractor defaults in performance of this contract in accordance with its terms, including the obligation to make satisfactory progress towards producing and testing the SST aircraft in accordance with the contract, the Contractor shall be refunded its share of allowable costs under Contracts FA-SS-64-4, FA-SS-65-20, and

\*Wherever refund of the Contractor's share of Contract FA-SS-66-5 is referred to in this contract, it shall mean its share less any amounts credited in accordance with Article IV.A.5 hereof and the clause in its Phase II-C contract entitled "Phase III Credit".

FA-SS-66-5, but shall not be refunded any of its share under this contract; provided that the Contractor shall not be required to refund to the Government allocable amounts previously credited to the Contractor as fee hereunder.

3. Termination Due to Nonfunding of Contract Overrun

If the Government elects not to fund a cost overrun under this contract, the contract shall be terminated and the Contractor refunded its allowable cost share under Contracts FA-SS-64-4, FA-SS-65-20, and FA-SS-66-5, its allowable cost share less allocable fee credit under this contract, and seventy-five percent (75%) of its allowable share of any actual overrun amount.

4. Termination for Failure to Agree on Future Financial Plan

Refer to Article XIII of this contract.

5. Limitation on Refund of Cost Share

The Government shall not be liable for refund of any costs which, when added to costs already paid or payable to the Contractor, exceed the following under each of the enumerated contracts:

- (a) for Contract FA-SS-64-4, a total amount of \$6,750,000.00,
- (b) for Contract FA-SS-65-20, a total amount of \$6,000,000.00,
- (c) for Contract FA-SS-66-5, a total amount of \$60,000,000.00,
- (d) for this contract, the amount currently funded.

C. Obligation Arising from Refund of Cost Share

Notwithstanding any other provision of this or any other contract, in the event the Contractor is refunded all of its cost share in accordance with this contract, the Contractor shall:

1. Transfer to the Government title to all Subject Inventions under this contract, Contracts FA-SS-64-4, FA-SS-65-20, and FA-SS-66-5.
2. Convey title to all data resulting from performance of this contract, Contracts FA-SS-64-4, FA-SS-65-20, and FA-SS-66-5 to the Government, as required by the Contracting Officer.
3. When requested by the Contracting Officer, transfer to the Government all technical data, manufacturing information and "know-how" developed under contracts and subcontracts the costs of which are refunded in whole under paragraph B above or Article XIII of the contract. The Contractor shall also, upon request of the Government and upon receipt of the Government's agreement to pay all allowable costs, provide necessary services, including

reasonable access to and use of its personnel in order to assure the complete transfer of such data, information, and "know-how". Allowable costs for such transfer shall not include any costs for the generation of such data, information, and "know-how".

The Contracting Officer shall be entitled to exercise the above rights for a period of three years following the final payment under this contract.

In the event of such refund, the Government may not preclude the Contractor from use without charge of such data, patents, or "know-how".

**D. Special Cost Items**

In determining the allowability under this contract of particular items of cost specified in Section 1-15 of the Federal Procurement Regulations, and in establishing overhead rates, the Federal Aviation Agency shall not necessarily be bound by arrangements with, or findings by, Contracting Officers or employees of other Government Agencies. The Contracting Officer under this contract will participate, whenever feasible, with other agencies of the Government in joint negotiation or determination of such items or rates.

Notwithstanding any restrictions as to allowability under Section XV of the Federal Procurement Regulations, reasonable costs related to the commercial sale of the SST aircraft being developed under this contract will be considered allowable.

Other costs listed in Section 1-15.107 of the Federal Procurement Regulations are not allowable hereunder except to the extent specifically agreed to in writing by the Contracting Officer.

**E. Segregation of Cost**

The Contractor shall use an accounting system and procedures, satisfactory to the Contracting Officer, for the segregation, identification, and charging of all costs under this contract. This accounting system shall be based upon the Contractor's system in existence on September 6, 1966. Upon advance written notice to the Contracting Officer, the Contractor may make reasonable revisions thereto, in accordance with generally acceptable accounting procedures and the needs of the program. Except as segregated, identified, and charged in accordance with this system and these procedures, costs shall not be allowable under this contract.

**F. Limitation of Government Obligation**

1. This contract shall be incrementally funded to the extent that the Government makes funds available for payment of costs hereunder. The first increment of work shall commence January 1, 1967, and end September 30, 1967; the estimated cost of this increment, including the Contractor's share

and termination reserve, is \$125,000,000.00; and the work to be performed shall consist of all work specified in the contract that reasonably can be performed, including meeting those milestones set forth in Exhibit A to this contract scheduled to be met during this time in order to ensure orderly progress and timely completion of the work specified in this contract.

2. Succeeding increments of work may be authorized by written notice issued by the Contracting Officer specifying the work which can be reasonably performed during this time, generally in accordance with Exhibit A of this contract. The requirements of the notices shall be negotiated by the parties, and shall be in reasonable proportion to, related to, and permit an orderly progress in meeting the total contract work requirements within the time specified for performance of the contract. Failure to agree on any terms of the notice shall be a dispute as to a question of fact within the meaning of the "Disputes" clause of this contract.

3. If at any time during the performance of the work under this contract, the Contractor estimates that it will incur allowable costs in excess of the amount currently funded within the next succeeding ninety (90) days, the Contractor shall immediately notify the Contracting Officer, giving its estimate of costs, in excess of the amount currently funded, expected to be incurred prior to the date when the next incremental funding is to occur. If at any time the Contractor estimates that the total cost for the performance of this contract will be more than five percent (5%) greater or less than the total estimated contract cost, the Contractor shall immediately notify the Contracting Officer in writing, giving its estimate of such revised total estimated contract cost. The Government shall not be obligated to reimburse the Contractor for costs incurred in excess of the amount currently funded under the contract, and the Contractor shall not be obligated to continue performance under the contract or to incur costs in excess of the amount currently funded, until the Contracting Officer shall have notified the Contractor in writing that additional funds are available. When and to the extent such additional funds have been provided, any allowable costs incurred by the Contractor in excess of the previously funded amount shall be reimbursed in accordance with the terms of this contract.

4. In the event the Contractor is delayed by reason of the failure on the part of the Government to fund this contract at the time the Contractor is entitled to stop work by reason of unavailability of funds, the Contractor shall be entitled to an equitable adjustment in the contract schedule for the time loss resulting therefrom. In the event of failure by the Government to provide additional funds within thirty (30) days after the end of the current work increment or thirty (30) days after the time when the Contractor is entitled to stop work by reason of unavailability of funds, whichever is the earlier, the Government shall, upon written request by the Contractor, terminate the contract for convenience unless the Government elects to continue the program, in which event there shall be an equitable adjustment in the estimated cost, the schedule and such other terms and conditions as may be appropriate. In the event that

this contract is terminated at the end of said thirty (30) day period, expenditures by the Contractor in performing the contract statement of work subsequent to the date specified in paragraph F.1 above but prior to the date of termination shall be considered allowable termination costs.

5. The maximum cost to the Government hereunder, including termination liability, shall be the amount set forth in paragraph F.1 above. The Government shall not be obligated to reimburse the Contractor for costs incurred in excess of the total amount from time to time established as the maximum cost to the Government under this contract.

**G. Subcontractor Participation**

Subject to such reasonable conditions and procedures as the Contracting Officer may prescribe, the gross amount of costs incurred on cost sharing subcontracts (i.e., the Contractor's and subcontractor's share) shall be considered costs incurred under this contract.

**ARTICLE V. ACCEPTANCE**

Upon satisfactory completion of all work hereunder, acceptance of all items specified in Exhibit A to be delivered under this contract shall be made by the Contracting Officer.

**ARTICLE VI. PHASE II SST PROPERTY**

Other than facilities (the use of which is covered by Article VII), the Contractor and its subcontractors, subject to the provisions of this contract, are authorized to use in performance hereunder Government property, including special tooling and special test equipment, heretofore furnished to, acquired or manufactured by the Contractor and its subcontractors under Contracts FA-SS-64-4, FA-SS-65-20, FA-SS-66-5. Federal Aviation Agency-owned property may be used on a no-charge basis by the Contractor in performance of work hereunder. Other Government property may be used on a no-charge, noninterference basis to the extent permitted by the cognizant Government Agency.

**ARTICLE VII. FACILITIES**

**A. Policy**

The Contractor shall provide all facilities, severable and nonseverable, necessary for the performance of the work required under this contract, except for those which may be furnished by the Government from existing sources. Costs associated with the modification, acquisition, maintenance, and repair of Contractor-provided facilities shall not be a direct charge to this contract.

B. Government-Furnished Facilities

1. The Contractor shall be permitted rent-free use of Government-furnished facilities available under Facilities Contracts AF33(600)-26785, AF33(600)-36041 and AF33(600)-41399, as of the date of this contract. If any such facilities are withdrawn from the aforementioned Facilities Contracts, the Contractor shall provide any replacement facilities which it considers necessary in accordance with the policy stated in A. above.
2. Other necessary on-hand Government-owned property and services may be made available to the Contractor during Phase III in accordance with: (i) the Contractor's requirements as identified in document no. D6A10360-1, "Government Furnished Property and Services", (ii) the terms of any applicable Government facilities contract, and (iii) the agreement of the Government Agency owning such facilities. Except for any facilities owned by the Federal Aviation Agency, such facilities will be furnished on a noninterference basis, i.e., subject to recall by the Government at any time. If it is not feasible to obtain rent-free use of these facilities, allocable rental and use charges on these facilities assessed by other Government Agencies shall be considered allowable costs under this contract. Costs applicable to transportation or modification of Government-furnished facilities will be charged in accordance with the Contractor's normal accounting practice, as approved by the Contracting Officer. In the event that such items can not be provided by the Government, the Contracting Officer shall equitably adjust the terms and conditions of this contract. Such equitable adjustment shall not include the obligation of the Government to provide replacement facilities as a direct charge to this contract.
3. In addition to the foregoing, all Government property supplied by the Defense Supply Agency (DSA) or Defense Industrial Plant Equipment Center (DIPEC) through the Federal Aviation Agency for work on this contract is furnished subject to the following conditions:
  - a. Accountability, maintenance, protection, preservation, repair and parts replacement will be in accordance with applicable DOD Facility Contracts. Except as to any loss or damage, the risk for which is borne by the Government under the existing applicable DOD Facility Contract, such Government-furnished property will be returned to DSA in as good condition as when received, normal wear and tear excepted.
  - b. Costs charged by DIPEC or DSA in connection with this property, whether or not billed directly to the Federal Aviation Agency, shall be paid by the Contractor, and the Contractor reimbursed therefor as direct costs under the terms of the contract; provided that there shall be no increase in the estimated contract cost or fee credit because of any such costs.

c. The Contractor shall immediately notify the Federal Aviation Agency of all DSA and DIPEC property that will be relocated or is no longer required in the performance of work under this contract.

d. In the event of partial mobilization, national emergency, or other urgent DOD needs, as determined by the Secretary of Defense, all DSA and DIPEC property shall be returned upon notice by the Contracting Officer.

4. The parties shall negotiate specific language to be incorporated into the contract by contract amendment delineating the Federal Aviation Agency/Contractor relationship in regard to work to be accomplished at the Arnold Engineering Development Center. Any contract provision shall be compatible with the terms of the existing Federal Aviation Agency/Arnold Engineering Development Center Interagency Agreement.

5. The Federal Aviation Agency shall use its best efforts to obtain approval from other Government agencies concerned for use under this contract, on a rent-free, noninterference basis, of the necessary Government-owned facilities now available to subcontractors.

#### ARTICLE VIII. CONTRACT DATE

The effective date of this contract shall be the date on the face page specified as the "Date of Contract".

#### ARTICLE IX. VALUE ENGINEERING INCENTIVES - SUBCONTRACTS

Wherever appropriate, the Contractor shall include value engineering incentive clauses in subcontracts over \$100,000 that are not of the cost share type. These clauses should essentially cover the principles outlined in the Federal Aviation Agency Procurement Regulation (FAPR Notice No. 7) (Section 2-7.150-22, April 1965).

#### ARTICLE X. DISSEMINATION OF CONTRACT INFORMATION

The Contractor shall not publish, release for publication or distribute for public consumption, any information, oral or written, concerning results or conclusions made in the performance of this contract, without prior written consent of the Contracting Officer. However, this clause shall not be construed to prohibit the Contractor from communicating information to airlines and airport operators as required to perform work under this contract and consistent with the purposes of this program.

**ARTICLE XI. RESPONSIBILITY FOR TOTAL SST SYSTEM PERFORMANCE**

**A. For purposes of this Article:**

1. "Total SST systems performance" means the integrated performance of (i) aircraft systems procured under this contract, and (ii) propulsion systems provided by the Government as set forth in Exhibit C to this contract.

2. "Overall responsibility" means responsibility for undertaking any action necessary to ensure total SST system performance, and effecting any corrections required under the "Inspection and Correction of Defects" clause of this contract.

B. The Contractor shall have overall responsibility for total SST systems performance; provided that the conditions in paragraph C. below have been met.

C. The Contractor's obligation under paragraph B. above with respect to the propulsion systems shall be conditioned on:

1. The Contractor's written concurrence prior to award of this contract of the Statement of Work, Engine Specifications and delivery schedule initially specified in the contract between the Government and the Engine Contractor (the "engine contract").

2. The Contractor's written concurrence, not to be unreasonably withheld, of any change affecting the required performance characteristics or delivery schedule of the propulsion systems to be furnished by the Government and listed in Exhibit B hereto, if such change is also agreed to by the Contracting Officer under the engine contract.

3. The Contractor's written concurrence, not to be unreasonably withheld, in each decision of the Contracting Officer made pursuant to the "Inspection and Correction of Defects" clause in the engine contract.

4. The Contractor's written concurrence, not to be unreasonably withheld, in the Government's decision that each item of the furnished propulsion systems listed in Exhibit C hereto has met the requirements of the engine contract; and

5. The Contractor's written concurrence, not to be unreasonably withheld in the method of measuring and testing engine performance under the engine contract, including a reasonable right in the Contractor to observe engine testing.

D. The Contractor and the Engine Contractor have entered into and will retain in effect for the period of this contract a Systems Responsibility Agreement concerning, among other matters, the allocation of allowable costs between this contract and the engine contract with respect to:

1. System modifications within existing requirements of this contract and the engine contract; and
2. Correction of interface/matching and system deficiencies, (i) pursuant to the "Inspection and Correction of Defects" clause of this contract and the engine contract or (ii) to ensure total SST system performance.

Any specific allocation of such costs between this contract and the engine contract shall be reasonable and in accordance with the terms of said Agreement. Upon request of the Contractor and the Engine Contractor, the Contracting Officer shall amend this contract and the engine contract, as required, to affect such cost allocation. The Contractor agrees to furnish the Contracting Officer with an informational copy of the Agreement and all changes made thereto.

E. Except as may be provided above, the Government is not bound in any way by the terms and conditions of the Systems Responsibility Agreement.

F. Nothing in this Article relieves the Contractor from its obligations under any of the other terms and conditions of this contract.

#### **ARTICLE XII. SALE OF PRODUCTION AIRCRAFT AND COMPONENTS**

The Aircraft and Engine Contractors will negotiate all sales of production aircraft and engines and make firm sales commitments. The sales contracts shall be negotiated at the earliest possible time. The Aircraft Contractor shall initiate negotiations of sales contracts subject to the terms of the Government-approved delivery positions. Failure of the parties to consummate firm sales contracts may result in cancellation of the affected airlines' delivery position agreements with the Government.

The Contractors shall negotiate sales in accordance with the principle that substantial prepayments from the purchasers will be obtained at the earliest possible time. Each Contractor will determine price and other terms of sale of its products. Each Contractor is authorized to negotiate prepayments, downpayments, and progress payments with its customers.

The Engine and Aircraft Contractors may negotiate spare engines and spare parts sales separately or jointly, as they desire.

**ARTICLE XIII. FINANCIAL PLAN FOR FUTURE PHASES OF THE SST  
DEVELOPMENT PROGRAM**

Not later than June 30, 1968, the Contractor shall propose for Government approval a financial plan applicable to future phases of the SST Program. Such proposal shall include any long-lead requirements which must be contractually implemented prior to the official start of any follow-on phase. The Contractor may also include in this financial plan an alternate recoupment formula for recovery of the parties' Phase II and III investments, provided such recoupment formula is as equally advantageous to the Government as that specified in Article XIV below. If the parties do not agree on such financial plan, the Government may terminate this contract or choose to allow its completion, and in either event, the Government shall refund all of the Contractor's share of Phase II costs and seventy-five percent (75%) of its share of Phase III allowable costs, less allocable fee credit.

**ARTICLE XIV. RECOVERY OF COSTS - PHASE III**

A. The Contractor shall pay to the Government a royalty payment of fifteen percent (15%) of sums received by or credited to the Contractor or its privies (excluding subcontractors) on sales or leases (exclusive of sales or leases to the U.S. Government, either directly or indirectly through Government prime contractors) of any supersonic transport airplane which is substantially the same in design as or which is directly derived from that developed by the Contractor in the performance of this contract. Such royalty payments shall apply to all airplanes delivered after the point in time when it is estimated that Contractor's cumulative gross revenues from sales of such airplanes will equal Contractor's cumulative gross production recurring and non-recurring expenditures (including interest). Said estimated production break-even point shall be determined by the mutual agreement of the parties at the time of agreement on the financial plan for certification testing and production.

B. Recovery by the Government under this clause shall be limited to amounts expended for the supersonic transport development program by the Government by contract to the winning and losing engine and airframe contractors for Phase II and the Contractor and the Engine Contractor for Phase III and any follow-on phase supported financially by the Government. All amounts payable under this clause shall bear interest at the rate of four and one-half percent (4-1/2%) of the unpaid balance compounded annually. Any amounts of royalty received from other contractors shall reduce the Contractor's total obligation under this clause.

C. The Contractor's total obligation under this clause shall be reduced by an amount equal to all payments received by the Government as deposit for reservation of preferential delivery positions. For payments received, plus any accrued interest, by the Government prior to the effective date of this contract, the Contractor's total obligation shall be credited as of said effective date. For payments received subsequent to said effective date, the Contractor's total obligation shall be credited as of the date the payment is received.

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by the Government. If any such payment is refunded by the Government because of loss or waiver of a preferential delivery position, the Contractor's total obligation shall be increased as of the date and in the amount of such refund. At the time the affected airplane is sold, the sales price shall be reduced by an amount equal to the actual amount of any applicable deposit.

D. The Contracting Officer shall, upon award of this contract, provide a list of contracts, and a record of the amounts paid under each contract, which contribute to the amount of the Contractor's total obligation under this clause. He shall also provide notice of any new contracts with the Engine Contractor which add to the Contractor's obligation. Upon completion of any such contracts, he shall provide to the Contractor a record of the amounts actually paid by the Government under such contracts. Within 30 days after the end of each calendar quarter, the Contracting Officer shall provide to the Contractor a report of all royalty payments received from any source during the previous quarter which reduce the Contractor's obligation under this clause.

E. The Contractor shall report to the Government all sales or leases which might reasonably be considered to be subject to this clause; and the Contractor shall promptly render accurate, certified accounts thereon to the Government at reasonable intervals.

F. In selling or leasing the airplane identified in paragraph (A) above to the Government, either directly or indirectly, the Contractor shall, provided that the Contractor's royalty obligation has not been completed in accordance with paragraph (B) above, notify the purchaser or lessee in writing that the airplane was developed under a Federal Aviation Agency contract containing a Recovery of Costs clause and that the purchase or lease price of such airplane is less than the price of such airplane when sold or leased to others than the Government by an amount no less than the royalty payment due the Government under this clause. A copy of each such notice shall be sent to the Contracting Officer. In the event of such sales or leases to the Government, the Contractor's total obligation under this clause shall be reduced by an amount equal to the royalty which would have been paid if the sale had been subject to royalty. This requirement shall apply to any airplane sold or leased to the Government from the first production airplane until the Contractor has completed its obligation.

G. The Contractor agrees to limit voluntarily its profit on sales of the airplanes identified in paragraph (A) above so that the Contractor's cumulative gross revenues from such sales do not exceed the Contractor's cumulative gross expenditures (including interest on Contractor's investment and royalty payments to the Government) for all program phases by greater than an amount to be determined by the mutual agreement of the parties at the time of agreement on the financial plan for certification testing and production. In determining said profit level, the parties shall consider the inherent program risk present at that time. In the event that profits do exceed said agreed profit level, the Contractor will reduce airplane sales prices, retroactively and/or prospectively, so as not to exceed the profit limit.

H. The Engine Contractor's repayment obligation, including royalty rate, starting time, total obligation, etc., shall be in accordance with the Phase III contract between the Government and the Engine Contractor. However, on sales directly to the Contractor for incorporation into airplanes which are subject to royalty payment under the terms of this clause, the Engine Contractor shall not pay the required royalty but shall discount the engine price to the Contractor by the amount of royalty that would otherwise have been payable to the Government under the terms of the engine contract and the Engine Contractor's total obligation shall be reduced by an amount equal to the royalty which would have been paid if the sale had been subject to royalty.

#### ARTICLE XV. CHANGES

A. As used in this contract, a Category I change is defined as any change in the performance requirements set forth in paragraph D.2.b of Exhibit A to this contract.

All other design and engineering changes or changes to program plans are Category II changes.

B. The Contractor may make design and engineering changes in either or both the prototype configuration or the production design of the aircraft subject to the restrictions set forth in this paragraph B.

The Contractor shall not make any Category I changes or any change in the contract delivery schedule without the written approval of the Contracting Officer.

C. In addition to any changes made under paragraph B above, the Contractor may propose to make Category II changes in its prototype aircraft and request an increase in estimated contract cost and fee credit therefor. The Contractor may also request any delivery schedule change that it considers necessary to accomplish any proposed Category II change.

All such requests by the Contractor shall be supported by documentation showing why the proposed changes and increases are considered to be in the best interests of the Government and the SST Program. The supporting documentation shall show the effect on the current and subsequent phases, from a technical, operational, cost, and schedule standpoint, of each of the following:

1. The Contractor's not making the proposed Category II change;
2. The Contractor's making the proposed Category II change without any increase in estimated contract cost and fee credit, and change in contract delivery schedule; and
3. The Contractor's making the proposed Category II change with the requested increase in the contract estimated cost and fee credit, and change in contract delivery schedule.

The Contracting Officer in his sole discretion may, but is not required to, agree with the Contractor's proposed changes and increases. Any agreement of the parties regarding these changes and increases shall be included in a written contract amendment, which shall incorporate the agreed upon changes as part of the contract work statement.

Failure of the parties to agree on any of the proposed changes or increases shall not be deemed a dispute involving a question of facts within the meaning of the contract "Disputes" clause, nor otherwise reviewable in any administrative or judicial forum.

#### **ARTICLE XVI. MAXIMUM INCREMENTAL FUNDING REQUESTS**

A. On or before September 15, 1967, and on each annual anniversary of that date, the Contractor shall submit in writing to the Contracting Officer an estimate of the maximum aggregate allowable costs expected to be incurred by the Contractor in performance of the contract through the end of the following fiscal year (July 1 through June 30) and the following quarter (July 1 through September 30), plus termination reserve. If the Contractor fails to submit such estimate by the required date, the Contracting Officer may unilaterally make an estimate.

B. The Contractor shall promptly notify the Contracting Officer in writing if at any time the Contractor exceeds its planned expenditure rate, submitted as part of the Cost Status Report, to a degree that indicates the amount funded will be exceeded prior to the end of the funding period. The aforementioned notice to the Contracting Officer shall contain an adjusted planned expenditure rate for the remainder of the funding period and for the next funding period, which shall be within the estimate of the maximum aggregate allowable costs in paragraph A above. If directed by the Contracting Officer, the Contractor shall implement such adjusted planned expenditure rate for the remainder of the funding period to ensure that the amount currently funded shall be adequate to continue the work through such funding period. In the event such reduced expenditure rate is so directed, the terms and conditions of this contract, including statement of work and delivery schedule, shall be equitably adjusted.

#### **ARTICLE XVII. PATENT RIGHTS**

##### **A. Definitions Used in this Article**

1. Subject Invention means any invention or discovery, whether or not patentable, conceived or first actually reduced to practice in the course of or under this contract. The term Subject Invention includes, but is not limited to, any art, machine, manufacture, design or composition of matter, or any new and useful improvement thereof, or any variety of plant, which is or may be patentable under the patent laws of the United States of America or any foreign country.

2. Contract means any contract, agreement, grant, or other arrangement, or subcontract entered into with or for the benefit of the Government where a purpose of the contract is the conduct of experimental, developmental or research work.

3. Subcontract and Subcontractor mean any subcontract or subcontractor of the Contractor, any lower-tier subcontract or subcontractor under this contract.

4. Background Patent means any patent, foreign or domestic, relating to aircraft, components hereof, and methods of manufacturing such aircraft and components which are the product of this contract under which the Contractor has the right to license others and which is employed in the manufacture, use or sale of a United States SST.

B. With respect to Subject Inventions (made by the Contractor), the Contractor shall promptly (and in any case within one year of conception or first actual reduction to practice) give the Contracting Officer written notice thereof and shall as soon as such information becomes available, furnish the Contracting Officer with a written disclosure sufficiently complete as to technical detail to convey to one skilled in the art to which the information pertains a clear understanding of the nature, purpose, operation and, as the case may be, physical, chemical or electrical characteristics of the Subject Invention. The Contractor will also notify the Contracting Officer within one year after submission to the Contracting Officer of the written disclosure (or such other greater time as the Contracting Officer determines to be equitable under the circumstances as requested and justified by the Contractor) as to whether a United States patent application covering the Subject Invention will be filed by or on behalf of the Contractor.

C. The Contractor further agrees that with respect to Subject Inventions (made by the Contractor) it will furnish:

1. prior to final settlement of this contract, a final report listing all such Inventions or certifying that there are no such unreported inventions; and

2. information in writing, as soon as practicable, of the date and identity of any public use, sale, or publication of any such invention made by or known to the Contractor or of any contemplated publication by the Contractor; and

3. upon request, such duly executed instruments and other papers (prepared by the Government) as are deemed necessary to vest in the Government the rights granted it under this Article and to enable the Government to apply for and prosecute any patent application, in any country, covering such invention where the Government has the right under this Article to file such application; and

4. upon request, an irrevocable power of attorney to inspect and make copies of each United States patent application filed by, or on behalf of, the Contractor covering any such invention.

D. 1. The Contractor agrees to and does hereby grant to the Government an irrevocable, nonexclusive, and royalty-free license to practice and have practiced each Subject Invention (made by the Contractor or its employees) throughout the world, including the unlimited right to sublicense others to practice and have practiced such Subject Invention throughout the world for any purpose whatsoever, royalty-free or on terms that the Government deems to be reasonable under the circumstances.

2. The Contractor further agrees that upon the written request of the Contracting Officer it will transfer and assign to the Government the title to any Subject Invention (made by the Contractor), such assignment to be subject to the reservation of an irrevocable, nonexclusive royalty-free license to the Contractor (and to its existing and future associated and affiliated companies, if any, within the corporate structure of which the Contractor is a part). Such reserved license to the Contractor shall include the right to sublicense others and shall be assignable to that part of the Contractor's business to which such Invention pertains. With respect to any Subject Invention on which the Contractor has elected to file a United States patent application, any request for title by the Contracting Officer shall be made within one year after such election by the Contractor except as provided in paragraphs H3 and I hereof.

3. Notwithstanding anything to the contrary herein, the rights (including title) retained by or reserved or granted to the Contractor under the foregoing subparagraphs 1 and 2 of this paragraph D shall be subject to the Contractor's obligation under Article IV entitled "Consideration and Payment" of this contract to release and convey to the Government its title and rights to grant licenses and sublicense under patents covering Subject Invention in the event the Contractor is repaid its cost share as provided in Article IV entitled "Consideration and Payment" of this contract.

4. The Contractor also agrees, to the extent that the use of a Background Patent is, in the opinion of the Government, required in the manufacture, use, or sale of a United States SST Aircraft, to grant to others on terms which are reasonable under the circumstances, a license to use such Background Patent in the manufacture, use, or sale of a United States SST. Terms which are reasonable under the circumstances shall be established taking into consideration current royalty rates for similar patents and other pertinent circumstances including the Contractor's financial contribution of its own funds to develop the Invention which is the subject of the patent. Where the Contractor and an applicant for a license cannot agree on terms, the terms may be determined by a court of competent jurisdiction; and the Contractor shall not have the right to enjoin the use, manufacture, or sale of a Background Patent with respect to its application to supersonic aircraft.

5. Notwithstanding subparagraph 4 above, to the extent the use of a subcontractor's Background Patent is, in the opinion of the Government, required in the manufacture, use, or sale of the product developed by the subcontractor under the subcontract, to meet the needs of the Supersonic Transport Program,

and provide further that the Government also determines that the subcontractor, together with others deriving rights from his patents, has not produced the product at a reasonable price in sufficient quantity, and on a level of quality to meet the needs of the SST Program, the subcontractor agrees to grant to others on terms that are reasonable under the circumstances, a license to use such Background Patent for the production, sale, and use of the product to meet the needs of the SST Program. Where the subcontractor and an applicant for a license cannot agree on terms, the subcontractor (or those deriving rights from the subcontractor) shall not seek injunctive relief to enforce a Background Patent without (i) previously advising the General Counsel of the Federal Aviation Agency, (ii) giving Government the right to intervene in the injunction proceeding, and (iii) disclosing the commitment set out in this clause to the court from which the injunction is sought.

E. Notwithstanding any other provisions of this Patent Rights Article, the Contractor's right to grant licenses or sublicenses to others for SST use under foreign patents covering Subject Inventions shall be subject to the approval of the Administrator, and no such licenses or sublicenses shall be granted which are deemed by the Government to be undesirable from the standpoint of the United States national interest. The Contractor further agrees that its right to grant licenses or sublicenses to others for SST use under domestic patents covering Subject Inventions shall be subject to the approval of the Administrator.

F. Except as otherwise authorized in writing by the Contracting Officer, the Contractor shall obtain patent agreements to effectuate the provisions of this Article from all persons who perform any part of the work under this contract, except such clerical and manual labor personnel as will have no access to technical data.

G. 1. Except as otherwise authorized in writing by the Contracting Officer, the Contractor will insert in each cost share subcontract, having experimental, developmental, or research work as one of its purposes, provisions making this Article applicable to the subcontractor and its employees.

2. Except as otherwise authorized in writing by the Contracting Officer, the Contractor will insert in each subcontract (other than a cost share type) having experimental, developmental, or research work as one of its purposes, provisions making FAPR 2-7.450.2, "Patent Rights", (FAPR Notice No. 23, January 1966) applicable to the subcontractors and its employees.

H. In connection with each Subject Invention referred to in B above:

1. If the Contractor has elected to file a United States patent application claiming such Invention, the Contractor shall, within six (6) months after the election, file or cause to be filed such application in due form and shall so notify the Contracting Officer at the time of such filing; if the Contractor does not file or cause to be filed such application, he shall notify the Contracting Officer within the six (6) month period.

2. If the Contractor has elected not to file or to cause to be filed a United States patent application claiming such Invention, or has made the contrary election but has not filed or caused to be filed such application within six (6) months after the election, the Contractor shall inform the Contracting Officer in writing, as soon as practicable, of the date and identity of any public use, sale, or publication of such Invention made by or known to the Contractor or of any contemplated publication by the Contractor and shall, upon the written request of the Contracting Officer, assign the title to such Invention to the Government subject to the reservation specified in paragraph D2 hereof.

3. In the event the Contractor, or those other than the Government deriving rights from the Contractor, elects not to continue prosecution of any such United States patent application filed by or on behalf of the Contractor, the Contractor shall so notify the Contracting Officer not less than sixty (60) days before the expiration of the response period and, upon written request, deliver to the Contracting Officer such duly executed instruments (prepared by the Government) as are deemed necessary to assign title in the application to the Government subject to the reservation as specified in paragraph D2 of this Article; and

4. The Contractor shall deliver to the Contracting Officer duly executed instruments fully confirmatory of all rights herein agreed to be granted or reserved to the Government.

I. The Contractor, or those other than the Government deriving rights from the Contractor, shall as between the parties hereto, have the exclusive right (subject to the rights of the Government under paragraph D of this Article to acquire title to any Subject Invention) to file applications on Subject Inventions (made by the Contractor) in each foreign country within:

1. nine (9) months from the date a corresponding United States application is filed, or nine (9) months from the date the Contractor discloses a Subject Invention under paragraph B above with an election not to file a United States application;

2. six (6) months from the date permission is granted to file foreign applications where such filing had been prohibited for security reasons; or

3. such longer period as may be approved by the Contracting Officer. The Contractor shall notify the Contracting Officer of each foreign application filed and, upon written request of the Contracting Officer, assign to the Government title in each Subject Invention in each foreign country in which an application has not been filed within the time above specified, subject to the reservation specified in paragraph D2 of this Article.

J. Nothing contained in this Patent Rights Article shall be deemed to grant any rights to either the Contractor or the Government or create any obligations with respect to any invention other than a Subject Invention or a Background Patent.

K. The Contracting Officer or his authorized representatives shall, until the expiration of three (3) years after final payment under this contract, have the right to examine any books, records, documents, and other supporting data of the Contractor which the Contracting Officer or his representative shall reasonably deem pertinent to the discovery or identification of Subject Inventions or to compliance by the Contractor with the requirements of this Article.

L. The Government may duplicate and disclose reports and disclosures of Subject Inventions required to be furnished by the Contractor pursuant to this Patent Rights Article.

M. Notwithstanding any of the foregoing, rights to inventions under patents and applications for patents specifically excluded under previous contracts between the parties shall be determined in accordance with the terms of the contract containing such specific exclusion, and not according to the terms of this contract; and with respect to inventions not conceived under this contract but reduced to practice hereunder the Contractor shall have the right to request, and the Administrator shall have the right to grant, waiver of the rights accruing to the Government under this Article. However, nothing in this paragraph M shall be deemed to limit or detract from the Contractor's obligation under paragraph D4 hereof to grant licenses under any such inventions which are Background Patents as defined herein.

N. Each United States patent application covering a Subject Invention filed by or on behalf of the Contractor and any patent issuing thereon shall contain a statement that the invention described and claimed therein resulted from work done under a United States Government contract, shall identify the contract, and shall state that the United States Government has an irrevocable, non-exclusive license under said application to practice and have practiced the invention claimed therein, including the unlimited right to sublicense others to practice and have practiced the claimed invention for any purpose whatsoever. The Contractor further agrees to notify the Contracting Officer of any license it grants covering a Subject Invention and to furnish the Contracting Officer with a copy of such license.

#### **ARTICLE XVIII. SECURITY REQUIREMENTS**

A. The provisions of this Article shall apply to the extent that this contract involves access to information classified "Confidential" including "Confidential-Modified Handling Authorized" or higher.

B. The Government shall notify the Contractor of the security classification of this contract and the elements thereof, and of any subsequent revisions in such security classification, by the use of a Security Requirements Check List (DD Form 254), or other written notification.

C. To the extent the Government has indicated as of the date of this contract or thereafter indicates security classification under this contract as provided in paragraph B above, the Contractor shall safeguard all classified elements of this contract and shall provide and maintain a system of security controls within its own organization in accordance with the requirements of: (i) the Security Agreement (DD Form 441), including the Department of Defense Industrial Security Manual for Safeguarding Classified Information as in effect on date of this contract, and any modification to the Security Agreement for the purpose of adapting the Manual to the Contractor's business; and (ii) any amendments to said Manual made after the date of this contract, notice of which has been furnished to the Contractor by the Security Office of the Military Department having security cognizance over the facility.

D. Representatives of the Military Department having security cognizance over the facility and representatives of the Federal Aviation Agency shall have the right to inspect at reasonable intervals the procedures, methods, and facilities utilized by the Contractor in complying with the security requirements of this contract. Should the Government, through these representatives, determine that the Contractor, is not complying with the security requirements of this contract, the Contractor shall be informed in writing by the Security Office of the cognizant Military Department of the proper action to be taken in order to effect compliance with such requirements.

E. If subsequent to the date of this contract, the security classifications or security requirements under this contract are changed by the Government as provided in this Article and the security costs under this contract are thereby increased or decreased, the estimated contract cost and fee credit shall be subject to an equitable adjustment by reason of such increased or decreased costs.

F. The Contractor agrees to insert, in all subcontracts hereunder which involve access to classified information, provisions which shall conform substantially to the language of this Article, including this paragraph F.

G. The Contractor also agrees that it shall determine that any subcontractor proposed by it for the furnishing of supplies and services which will involve access to classified information in the Contractor's custody has been granted an appropriate facility security clearance, which is still in effect, prior to being accorded access to such classified information.

#### ARTICLE XIX. GOVERNMENT-FURNISHED PROPULSION SYSTEMS

The Government agrees to furnish the Contractor with the propulsion system items as listed in Exhibit C, hereto, in accordance with the delivery schedule contained therein and subject to the provisions of Article XI and the clause in the General Provisions of this contract entitled "Government Property".

**ARTICLE XX. ADJUSTMENTS FOR CHANGES IN LAW**

**A.** If at any time during the performance of this contract, there is any change in applicable Federal or State laws or regulations governing taxes or the work conditions, wages (including Social Security and Unemployment Insurance) and fringe benefits of the Contractor's employees, which change results in an increase in the Contractor's cost or overhead, an equitable adjustment therefor shall be made in the total estimated cost and fee credit.

**B.** For the purposes of this clause:

1. Federal and State laws shall include the U.S. or State Constitution, Treaties, Federal or State Statutes, and regulations promulgated by Federal or State authorities.

2. A change in law shall be deemed to mean amendment or repeal of an existing law, the enactment of a new law, a change in the judicial interpretation of existing laws, or a new or revised regulation.

3. Existing shall be deemed to mean those laws which were in effect on the date of the Contractor's proposal for this contract or which were enacted on or before said date to take effect thereafter.

**C.** For any individual change in law or regulation, no adjustment shall be made unless it results in an increase in total estimated cost of \$100,000 or more.

**D.** The Contractor shall promptly notify the Contracting Officer of all matters pertaining to laws or regulations that reasonably may be expected to result in an increase in total estimated cost. Where an increase in the total estimated cost may be required under this clause, the Contractor shall take action as directed by the Contracting Officer, and the total estimated cost and fee credit shall be equitably adjusted to cover the costs of such action, including any interest, penalty, and reasonable attorney's fees.

GENERAL PROVISIONS

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1. DEFINITIONS

As used throughout this contract, the following terms shall have the meanings set forth below:

- (a) The term "head of the agency" or "Secretary" as used herein means the Administrator of the Federal Aviation Agency or the Director, Supersonic Transport Development; and the term "his duly authorized representative" means any person, persons or board authorized to act for the head of the agency or the Secretary.
- (b) The term "Contracting Officer" means the person executing this contract on behalf of the Government, and any other officer or civilian employee who is a properly designated Contracting Officer; and the term includes, except as otherwise provided in this contract, the authorized representative of a Contracting Officer acting within the limits of his authority.
- (c) Except as otherwise provided in this contract, the term "subcontracts" includes purchase orders under this contract.

2. ALLOWABLE COST, FIXED FEE AND PAYMENT

(a) For the performance of this contract, the Government shall pay to the Contractor:

- (1) The cost thereof (hereinafter referred to as "allowable cost") determined by the Contracting Officer to be allowable in accordance with
  - (i) Subpart 1-15.2 of Part 1-15 of the Federal Procurement Regulations as in effect on the date of this contract; and
  - (ii) the terms of this contract; and
- (2) Such fixed fee, if any, as may be provided for in the Schedule.
- (b) Once each week the Contractor may submit to an authorized representative of the Contracting Officer, in such form and reasonable detail as such representative may require, an invoice or public voucher supported by a statement of cost incurred by the Contractor in the performance of this contract and claimed to constitute allowable cost.
- (c) Promptly after receipt of each invoice or voucher and statement of cost the Government shall, except as otherwise provided in this contract, subject to the provisions of (d) below, make payment thereon as approved by the Contracting Officer of allowable cost incurred. Deduction of Contractor's share of allowable costs less allocable fee credit after application of applicable credits shall be made prior to payment. In addition, the Government shall withhold one-half of one percent of the amount reimbursable to the Contractor pending completion or termination of the contract, provided that such withholding shall not exceed \$100,000.

(d) At any time or times prior to final payment under this contract the Contracting Officer may have the invoices or vouchers and statements of cost audited. Each payment theretofore made shall be subject to reduction for amounts included in the related invoice or voucher which are found by the Contracting Officer on the basis of such audit, not to constitute allowable cost. Any payment may be reduced for overpayments, or increased for underpayments on preceding invoices or vouchers.

(e) On receipt and approval of the invoice or voucher designated by the Contractor as the "completion invoice" or "completion voucher" and upon compliance by the Contractor with all the provisions of this contract (including, without limitation, the provisions relating to patents and the provisions of (f) below), the Government shall promptly pay to the Contractor any balance of allowable cost, and any part of the fixed fee which has been withheld pursuant to (c) above or otherwise not paid to the Contractor. The completion invoice or voucher shall be submitted by the Contractor promptly following completion of the work under this contract but in no event later than one year (or such longer period as the Contracting Officer may in his discretion approve in writing) from the date of such completion.

(f) The Contractor agrees that any refunds, rebates, credits, or other amounts (including any interest thereon) accruing to or received by the Contractor or any assignee under this contract shall be paid by the Contractor to the Government, to the extent that they are properly allocable to costs for which the Contractor has been reimbursed by the Government under this contract. Reasonable expenses incurred by the Contractor for the purpose of securing such refunds, rebates, credits, or other amounts shall be allowable costs hereunder when approved by the Contracting Officer. Prior to final payment under this contract, the Contractor and each assignee under this contract whose assignment is in effect at the time of final payment under this contract shall execute and deliver:

(1) An assignment to the Government, in form and substance satisfactory to the Contracting Officer, of refunds, rebates, credits, or other amounts (including any interest thereon) properly allocable to costs for which the Contractor has been reimbursed by the Government under this contract; and

(2) A release discharging the Government, its officers, agents, and employees from all liabilities, obligations, and claims arising out of or under this contract, subject only to the following exceptions—

(i) Specified claims in stated amounts or in estimated amounts where the amounts are not susceptible of exact statement by the Contractor;

(ii) Claims, together with reasonable expenses incidental thereto, based upon liabilities of the Contractor to third parties arising out of the performance of this contract: Provided, That such claims are not known to the Contractor on the date of the execution of the release; And Provided further, That the Contractor gives notice of such claims in writing to the Contracting

Officer not more than six years after the date of the release or the date of any notice to the Contractor that the Government is prepared to make final payment, whichever is earlier; and

(iii) Claims for reimbursement of costs (other than expenses of the Contractor by reason of its indemnification of the Government against patent liability), including reasonable expenses incidental thereto, incurred by the Contractor under the provisions of this contract relating to patents.

### 3. ASSIGNMENT OF CLAIMS

(a) Pursuant to the provisions of the Assignment of Claims Act of 1940, as amended (31 U.S.C. 203, 41 U.S.C. 15), if this contract provides for payments aggregating \$1,000 or more, claims for moneys due or to become due the Contractor from the Government under this contract may be assigned to a bank, trust company, or other financing institution, including any Federal lending agency, and may thereafter be further assigned and reassigned to any such institution. Any such assignment or reassignment shall cover all amounts payable under this contract and not already paid, and shall not be made to more than one party, except that any such assignment or reassignment may be made to one party as agent or trustee for two or more parties participating in such financing. Unless otherwise provided in this contract, payments to an assignee of any moneys due or to become due under this contract shall not, to the extent provided in said Act, as amended, be subject to reduction or setoff.

(b) In no event shall copies of this contract or of any plans, specifications, or other similar documents relating to work under this contract, if marked "Top Secret," "Secret," or "Confidential," be furnished to any assignee of any claim arising under this contract or to any other person not entitled to receive the same. However, a copy of any part or all of this contract so marked may be furnished, or any information contained therein may be disclosed, to such assignee upon the prior written authorization of the Contracting Officer.

### 4. EXAMINATION OF RECORDS

(a) (1) The Contractor agrees to maintain books, records, documents, and other evidence pertaining to the costs and expenses of this contract (hereinafter collectively called the "records") to the extent and in such detail as will properly reflect all net costs, direct and indirect, of labor, materials, equipment, supplies and services, and other costs and expenses of whatever nature for which reimbursement is claimed under the provisions of this contract.

(2) The Contractor agrees to make available at the office of the Contractor at all reasonable times during the period set forth in subparagraph (4) below any of the records for inspection, audit or reproduction by any authorized representative of the Comptroller General.

(3) In the event that the Comptroller General or any of his duly authorized representatives determines that his audit of the amounts reimbursed under this contract as transportation charges will be made at a place other than the office of the Contractor, the Contractor agrees to deliver, with the reimbursement voucher covering such charges or as may be otherwise specified within two years after reimbursement of charges covered by any such voucher, to such representative as may be designated for that purpose through the Contracting Officer such documentary evidence in support of transportation costs as may be required by the Comptroller General or any of his duly authorized representatives.

(4) Except for documentary evidence delivered to the Government pursuant to subparagraph (3) above, the Contractor shall preserve and make available his records (i) for a period of three years from the date of final payment under this contract, and (ii) for such longer period, if any, as is required by applicable statute, by any other clause of this contract, or by (A) or (B) below.

(A) If this contract is completely or partially terminated, the records relating to the work terminated shall be preserved and made available for a period of three years from the date of any resulting final settlement.

(B) Records which relate to (i) appeals under the Disputes clause of this contract, (ii) litigation or the settlement of claims arising out of the performance of this contract, or (iii) cost and expenses of this contract as to which exception has been taken by the Comptroller General or any of his duly authorized representatives, shall be retained by the Contractor until such appeals, litigation, claims, or exceptions have been disposed of.

(5) Except for documentary evidence delivered pursuant to subparagraph (3) above, and the records described in subparagraph (4) (B) above, the Contractor may in fulfillment of his obligation to retain his records as required by this clause substitute photographs, microphotographs, or other authentic reproductions of such records, after the expiration of two years following the last day of the month of reimbursement to the Contractor of the invoice or voucher to which such records relate, unless a shorter period is authorized by the Contracting Officer with the concurrence of the Comptroller General or his duly authorized representative.

(6) The provisions of this paragraph (a), including this subparagraph (6), shall be applicable to and included in each subcontract hereunder which is on a cost, cost-plus-a-fixed-fee, time-and-material or labor-hour basis.

(b) The Contractor further agrees to include in each of his subcontracts hereunder, other than those set forth in subparagraph (a) (6) above, a provision to the effect that the subcontractor agrees that the Comptroller General or any of his duly authorized representatives, shall, until the expiration of three years after final payment under the subcontract, have access to and the right to examine any directly pertinent books, documents, papers, and records of such

subcontractor, involving transactions related to the subcontract. The term "subcontract", as used in this paragraph (b) only, excludes (i) purchase orders not exceeding \$2,500 and (ii) subcontracts or purchase orders for public utility services at rates established for uniform applicability to the general public.

**5. TERMINATION FOR DEFAULT OR FOR CONVENIENCE OF THE GOVERNMENT**

(a) The performance of work under the contract may be terminated by the Government in accordance with this clause in whole, or from time to time in part:

(1) Whenever the Contractor shall default in performance of this contract in accordance with its terms (including in the term "default" any such failure by the Contractor to make progress in the prosecution of the work hereunder as endangers such performance), and shall fail to cure such default within a period of thirty days (or such longer period as the Contracting Officer may allow) after receipt from the Contracting Officer of a notice specifying the default; or

(2) Whenever for any reason the Contracting Officer shall determine that such termination is in the best interest of the Government.

Any such termination shall be effected by delivery to the Contractor of a Notice of Termination specifying whether termination is for the default of the Contractor or for the convenience of the Government, the extent to which performance of work under the contract is terminated, and the date upon which such termination becomes effective. If, after notice of termination of this contract for default under (1) above, it is determined for any reason that the Contractor was not in default pursuant to (1), or that the Contractor's failure to perform or to make progress in performance is due to causes beyond the control and without the fault or negligence of the Contractor pursuant to the provisions of the clause of this contract relating to excusable delays, the Notice of Termination shall be deemed to have been issued under (2) above, and the rights and obligations of the parties hereto shall in such event be governed accordingly.

(b) After receipt of a Notice of Termination and except as otherwise directed by the Contracting Officer, the Contractor shall:

(1) Stop work under the contract on the date and to the extent specified in the Notice of Termination;

(2) Place no further orders or subcontracts for materials, services, or facilities, except as may be necessary for completion of such portion of the work under the contract as is not terminated;

(3) Terminate all orders and subcontracts to the extent that they relate to the performance of work terminated by the Notice of Termination;

(4) Assign to the Government, in the manner and to the extent directed by the Contracting Officer, all of the right, title, and interest of the Contractor under the orders or subcontracts so terminated, in which case the Government shall have the right, in its discretion, to settle or pay any or all claims arising out of the termination of such orders and subcontracts;

(5) With the approval or ratification of the Contracting Officer, to the extent he may require, which approval or ratification shall be final and conclusive for all purposes of this clause, settle all outstanding liabilities and all claims arising out of such termination of orders and subcontracts, the cost of which would be reimbursable in whole or in part, in accordance with the provisions of this contract;

(6) Transfer title to the Government (to the extent that title has not already been transferred) and deliver in the manner, at the times, and to the extent directed by the Contracting Officer, (i) the fabricated or unfabricated parts, work in process, completed work, supplies, and other material produced as a part of, or acquired in respect of the performance of, the work terminated by the Notice of Termination; (ii) the completed or partially completed plans, drawings, information, and other property which, if the contract had been completed, would be required to be furnished to the Government; and (iii) the jigs, dies, and fixtures, and other special tools and tooling acquired or manufactured for the performance of this contract for the cost of which the Contractor has been or will be reimbursed under this contract;

(7) Use his best efforts to sell, in the manner, at the times, to the extent, and at the price or prices directed or authorized by the Contracting Officer, any property of the types referred to in (6) above: Provided, however, That the Contractor (i) shall not be required to extend credit to any purchaser, and (ii) may acquire any such property under the conditions prescribed by and at a price or prices approved by the Contracting Officer: And provided further, That the proceeds of any such transfer or disposition shall be applied in reduction of any payments to be made by the Government to the Contractor under this contract or shall otherwise be credited to the price or cost of the work covered by this contract or paid in such other manner as the Contracting Officer may direct;

(8) Complete performance of such part of the work as shall not have been terminated by the Notice of Termination; and

(9) Take such action as may be necessary, or as the Contracting Officer may direct, for the protection and preservation of the property related to this contract which is in the possession of the Contractor and in which the Government has or may acquire an interest.

The Contractor shall proceed immediately with the performance of the above obligations notwithstanding any delay in determining or adjusting the amount of the fee, or any item of reimbursable cost, under this clause. At any time after expiration of the plant clearance period, as defined in Subpart 1-8.1 of the Federal Procurement Regulations (41 CFR 1-8.1), as the definition may be amended from time to time, the Contractor may submit to the Contracting Officer a list, certified as to quantity and quality, of any or all items of termination inventory not previously disposed of, exclusive of items the disposition of which has been directed or authorized by the Contracting Officer, and may request the Government to remove such items or enter into a storage agreement covering them. Not later than 15 days thereafter, the Government will accept such items and remove them or enter into a storage agreement covering the same: Provided, That the list submitted shall be subject to verification by the Contracting Officer upon removal of the items or, if the items are stored, within 45 days from the date of submission of the list, and any necessary adjustment to correct the list as submitted shall be made prior to final settlement.

(c) After receipt of a Notice of Termination, the Contractor shall submit to the Contracting Officer his termination claim in the form and with the certification prescribed by the Contracting Officer. Such claim shall be submitted promptly but in no event later than one year from the effective date of termination, unless one or more extensions in writing are granted by the Contracting Officer upon request of the Contractor made in writing within such one-year period or authorized extension thereof. However, if the Contracting Officer determines that the facts justify such action, he may receive and act upon any such termination claim at any time after such one-year period or any extension thereof. Upon failure of the Contractor to submit his termination claim within the time allowed, the Contracting Officer may, subject to any review required by the contracting agency's procedures in effect as of the date of execution of this contract, determine, on the basis of information available to him, the amount, if any, due to the Contractor by reason of the termination and shall thereupon pay to the Contractor the amount so determined.

(d) Subject to the provisions of paragraph (c), and subject to any review required by the contracting agency's procedures in effect as of the date of execution of this contract, the Contractor and the Contracting Officer may agree upon the whole or any part of the amount or amounts to be paid (including an allowance for the fee) to the Contractor by reason of the total or partial termination of work pursuant to this clause. The contract shall be amended accordingly, and the Contractor shall be paid the agreed amount.

(e) In the event of the failure of the Contractor and the Contracting Officer to agree in whole or in part, as provided in paragraph (d), as to the amounts with respect to costs and fee, or as to the amount of the fee, to be paid to the Contractor in connection with the termination of work pursuant to this clause, the Contracting Officer shall, subject to any review required by the contracting agency's procedures in effect as of the date of execution of this contract,

determine, on the basis of information available to him, the amount, if any, due to the Contractor by reason of the termination and shall pay to the Contractor the amount determined as follows:

(1) If the settlement includes cost and fee—

(i) There shall be included therein all costs and expenses reimbursable in accordance with this contract, not previously paid to the Contractor for the performance of this contract prior to the effective date of the Notice of Termination, and such of these costs as may continue for a reasonable time thereafter with the approval of or as directed by the Contracting Officer: Provided, however, That the Contractor shall proceed as rapidly as practicable to discontinue such costs;

(ii) There shall be included therein so far as not included under (i) above, the cost of settling and paying claims arising out of the termination of work under subcontracts or orders, as provided in paragraph (b) (5) above, which are properly chargeable to the terminated portion of the contract;

(iii) There shall be included therein the reasonable costs of settlement, including accounting, legal, clerical, and other expenses reasonably necessary for the preparation of settlement claims and supporting data with respect to the terminated portion of the contract and for the termination and settlement of subcontracts thereunder, together with reasonable storage, transportation, and other costs incurred in connection with the protection or disposition of termination inventory: Provided, however, That if the termination is for default of the Contractor there shall not be included any amounts for the preparation of the Contractor's settlement proposal; and

(iv) There shall be included therein a portion of the fee payable under the contract determined as follows—

(A) In the event of the termination of this contract for the convenience of the Government and not for the default of the Contractor, there shall be paid a percentage of the fee equivalent to the percentage of the completion of work contemplated by the contract, less fee payments previously made hereunder; or

(B) In the event of the termination of this contract for the default of the Contractor, the total fee payable shall be such proportionate part of the fee (or, if this contract calls for articles of different types, of such part of the fee as is reasonably allocable to the type of article under consideration) as the total number of articles delivered to and accepted by the Government bears to the total number of articles of a like kind called for by this contract.

If the amount determined under this subparagraph (1) is less than the total payment theretofore made to the Contractor, the Contractor shall repay to the Government the excess amount.

(2) If the settlement includes only the fee, the amount thereof will be determined in accordance with subparagraph (1) (iv) above.

(f) The Contractor shall have the right of appeal, under the clause of this contract entitled "Disputes", from any determination made by the Contracting Officer under paragraph (c) or (e) above, except that, if the Contractor has failed to submit his claim within the time provided in paragraph (c) above and has failed to request extension of such time, he shall have no such right of appeal. In any case where the Contracting Officer has made a determination of the amount due under paragraph (c) or (e) above, the Government shall pay to the Contractor the following:

(1) If there is no right of appeal hereunder or if no timely appeal has been taken, the amount so determined by the Contracting Officer, or (2) if an appeal has been taken, the amount finally determined on such appeal.

(g) In arriving at the amount due the Contractor under this clause there shall be deducted (1) all unliquidated advance or other payments theretofore made to the Contractor, applicable to the terminated portion of this contract, (2) any claim which the Government may have against the Contractor in connection with this contract, and (3) the agreed price for, or the proceeds of sale of, any materials, supplies, or other things acquired by the Contractor or sold pursuant to the provisions of this clause and not otherwise recovered by or credited to the Government.

(h) In the event of a partial termination, the portion of the fee which is payable with respect to the work under the continued portion of the contract shall be equitably adjusted by agreement between the Contractor and the Contracting Officer, and such adjustment shall be evidenced by an amendment to this contract.

(i) The Government may from time to time, under such terms and conditions as it may prescribe, make partial payments and payments on account against costs incurred by the Contractor in connection with the terminated portion of the contract whenever in the opinion of the Contracting Officer the aggregate of such payments shall be within the amount to which the Contractor will be entitled hereunder. If the total of such payments is in excess of the amount finally determined to be due under this clause, such excess shall be payable by the Contractor to the Government upon demand, together with interest computed at the rate of six percent per annum, for the period from the date such excess payment is received by the Contractor to the date on which such excess is repaid to the Government: Provided, however, That no interest shall be charged with respect to any such excess payment attributable to a reduction in the Contractor's claim by reason of retention or other disposition of termination inventory until ten days after the date of such retention or disposition, or such later date as determined by the Contracting Officer by reason of the circumstances.

(j) The provisions of this clause relating to the fee shall be inapplicable if this contract does not provide for payment of a fee.

**6. DISPUTES**

(a) Except as otherwise provided in this contract, any dispute concerning a question of fact arising under this contract which is not disposed of by agreement shall be decided by the Contracting Officer, who shall reduce his decision to writing and mail or otherwise furnish a copy thereof to the Contractor. The decision of the Contracting Officer shall be final and conclusive unless within 30 days from the date of receipt of such copy, the Contractor mails or otherwise furnishes to the Contracting Officer a written appeal addressed to the Secretary. The decision of the Secretary or his duly authorized representative for the determination of such appeals shall be final and conclusive unless determined by a court of competent jurisdiction to have been fraudulent, or capricious, or arbitrary, or so grossly erroneous as necessarily to imply bad faith, or not supported by substantial evidence. In connection with any appeal proceeding under this clause, the Contractor shall be afforded an opportunity to be heard and to offer evidence in support of its appeal. Pending final decision of a dispute hereunder, the Contractor shall proceed diligently with the performance of the contract and in accordance with the Contracting Officer's decision.

(b) This "Disputes" clause does not preclude consideration of law questions in connection with decisions provided for in paragraph (a) above: Provided, That nothing in this contract shall be construed as making final the decision of any administrative official, representative, or board on a question of law.

**7. NOTICE AND ASSISTANCE REGARDING PATENT AND COPYRIGHT INFRINGEMENT**

(The provisions of this clause shall be applicable only if the amount of this contract exceeds \$10,000.)

(a) The Contractor shall report to the Contracting Officer, promptly and in reasonable written detail, each notice or claim of patent or copyright infringement based on the performance of this contract of which the Contractor has knowledge.

(b) In the event of any claim or suit against the Government on account of any alleged patent or copyright infringement arising out of the performance of this contract or out of the use of any supplies furnished or work or services performed hereunder, the Contractor shall furnish to the Government, when requested by the Contracting Officer, all evidence and information in possession of the Contractor pertaining to such suit or claim. Such evidence and information shall be furnished at the expense of the Government except where the Contractor has agreed to indemnify the Government against the claim being asserted.

**8. CONVICT LABOR**

In connection with the performance of work under this contract, the Contractor agrees not to employ any person undergoing sentence of imprisonment at hard labor.

9. CONTRACT WORK HOURS STANDARDS ACT—OVERTIME  
COMPENSATION

This contract, to the extent that it is of a character specified in the Contract Work Hours Standards Act (40 U.S.C. 327-330), is subject to the following provisions and to all other applicable provisions and exceptions of such Act and the regulations of the Secretary of Labor thereunder.

(a) Overtime requirements. No Contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any laborer or mechanic in any workweek in which he is employed on such work to work in excess of eight hours in any calendar day or in excess of forty hours in such workweek on work subject to the provisions of the Contract Work Hours Standards Act unless such laborer or mechanic receives compensation at a rate not less than one and one-half times his basic rate of pay for all such hours worked in excess of eight hours in any calendar day or in excess of forty hours in such workweek, whichever is the greater number of overtime hours.

(b) Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the provisions of paragraph (a), the Contractor and any subcontractor responsible therefor shall be liable to any affected employee for his unpaid wages. In addition, such Contractor and subcontractor shall be liable to the United States for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic employed in violation of the provisions of paragraph (a) in the sum of \$10 for each calendar day on which such employee was required or permitted to be employed on such work in excess of eight hours or in excess of the standard workweek of forty hours without payment of the overtime wages required by paragraph (a).

(c) Withholding for unpaid wages and liquidated damages. The Contracting Officer may withhold from the Government Prime Contractor, from any moneys payable on account of work performed by the Contractor or subcontractor, such sums as may administratively be determined to be necessary to satisfy any liabilities of such Contractor or subcontractor for unpaid wages and liquidated damages as provided in the provisions of paragraph (b).

(d) Subcontracts. The Contractor shall insert paragraphs (a) through (d) of this clause in all subcontracts, and shall require their inclusion in all subcontracts of any tier.

(e) Payrolls and payroll records. The Contractor shall maintain payrolls and basic payroll records during the course of the work and shall preserve them for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name and address of each such employee, his correct classification, rate of pay, daily and weekly number of hours worked, deductions made and actual wages paid. The Contractor shall make his employment records available for inspection by authorized representatives of the Contracting Officer and the Department of Labor, and shall permit such representatives to interview employees during working hours on the job.

**10. WALSH-HEALEY PUBLIC CONTRACTS ACT**

If this contract is for the manufacture or furnishing of materials, supplies, articles, or equipment in an amount which exceeds or may exceed \$10,000 and is otherwise subject to the Walsh-Healey Public Contracts Act, as amended (41 U. S. Code 35-45), there are hereby incorporated by reference all representations and stipulations required by said Act and regulations issued thereunder by the Secretary of Labor, such representations and stipulations being subject to all applicable rulings and interpretations of the Secretary of Labor which are now or may hereafter be in effect.

**11. EQUAL OPPORTUNITY**

(The following clause is applicable unless this contract is exempt under the rules and regulations of the President's Committee on Equal Employment Opportunity (41 CFR, Chapter 60). Exemptions include contracts and subcontracts (i) not exceeding \$10,000, (ii) not exceeding \$100,000 for standard commercial supplies or raw materials, and (iii) under which work is performed outside the United States and no recruitment of workers within the United States is involved.)

During the performance of this contract, the Contractor agrees as follows:

(a) The Contractor will not discriminate against any employee or applicant for employment because of race, creed, color, or national origin. The Contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, creed, color, or national origin. Such action shall include, but not be limited to, the following: employment, upgrading, demotion or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided by the Contracting Officer setting forth the provisions of this nondiscrimination clause.

(b) The Contractor will, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, state that all qualified applicants will receive consideration for employment without regard to race, creed, color, or national origin.

(c) The Contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice, to be provided by the agency Contracting Officer, advising the said labor union or workers' representative of the Contractor's commitments under this nondiscrimination clause, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

(d) The Contractor will comply with all provisions of Executive Order No. 10925 of March 6, 1961, as amended, and of the rules, regulations, and relevant orders of the President's Committee on Equal Employment Opportunity created thereby.

(e) The Contractor will furnish all information and reports required by Executive Order No. 10925 of March 6, 1961, as amended, and by the rules, regulations, and orders of the said Committee, or pursuant thereto, and will permit access to his books, records, and accounts by the contracting agency and the Committee for purposes of investigation to ascertain compliance with such rules, regulations, and orders.

(f) In the event of the Contractor's noncompliance with the nondiscrimination clause of this contract or with any of the said rules, regulations, or orders, this contract may be canceled, terminated, or suspended in whole or in part and the Contractor may be declared ineligible for further Government contracts in accordance with procedures authorized in Executive Order No. 10925 of March 6, 1961, as amended, and such other sanctions may be imposed and remedies invoked as provided in the said Executive Order or by rule, regulation, or order of the President's Committee on Equal Employment Opportunity, or as otherwise provided by law.

(g) The Contractor will include the provisions of paragraphs (a) through (g) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the President's Committee on Equal Employment Opportunity issued pursuant to section 303 of Executive Order No. 10925 of March 6, 1961, as amended, so that such provisions will be binding upon each subcontractor or vendor.\* The Contractor will take such action with respect to any subcontract or purchase order as the contracting agency may direct as a means of enforcing such provisions, including sanctions for noncompliance: Provided, however, That in the event the Contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the contracting agency, the Contractor may request the United States to enter into such litigation to protect the interests of the United States.

\*Unless otherwise provided, the Equal Opportunity Clause is not required to be inserted in subcontracts below the second tier except for subcontracts involving the performance of "construction work" at the "site of construction" (as those terms are defined in the Committee's rules and regulations) in which case the clause must be inserted in all such subcontracts. Subcontracts may incorporate by reference the Equal Opportunity clause.

#### 12. OFFICIALS NOT TO BENEFIT

No member of or delegate to Congress, or resident commissioner, shall be admitted to any share or part of this contract, or to any benefit that may arise therefrom; but this provision shall not be construed to extend to this contract if made with a corporation for its general benefit.

**13. COVENANT AGAINST CONTINGENT FEES**

The Contractor warrants that no person or selling agency has been employed or retained to solicit or secure this contract upon an agreement or understanding for a commission, percentage, brokerage, or contingent fee, excepting bona fide employees or bona fide established commercial or selling agencies maintained by the Contractor for the purpose of securing business. For breach or violation of this warranty the Government shall have the right to annul this contract without liability or in its discretion to deduct from the contract price or consideration, or otherwise recover, the full amount of such commission, percentage, brokerage, or contingent fee.

**14. UTILIZATION OF SMALL BUSINESS CONCERNs**

(a) It is the policy of the Government as declared by the Congress that a fair proportion of the purchases and contracts for supplies and services for the Government be placed with small business concerns.

(b) The Contractor agrees to accomplish the maximum amount of subcontracting to small business concerns that the Contractor finds to be consistent with the efficient performance of this contract.

(If the contract amount exceeds \$500,000.00 the following clause is applicable).

**Small Business Subcontracting Program:**

(a) The Contractor agrees to establish and conduct a small business subcontracting program which will enable small business concerns to be considered fairly as subcontractors and suppliers under this contract. In this connection, the Contractor shall—

(1) Designate a liaison officer who will (i) maintain liaison with the Government on small business matters, (ii) supervise compliance with the Utilization of Small Business Concerns clause, and (iii) administer the Contractor's "Small Business Subcontracting Program."

(2) Provide adequate and timely consideration of the potentialities of small business concerns in all "make-or-buy" decisions.

(3) Assure that small business concerns will have an equitable opportunity to compete for subcontracts, particularly by arranging solicitations, time for the preparation of bids, quantities, specifications, and delivery schedules so as to facilitate the participation of small business concerns. Where the Contractor's lists of potential small business subcontractors are excessively long, reasonable effort shall be made to give all such small business concerns an opportunity to compete over a period of time.

(4) Maintain records showing (i) whether each prospective subcontractor is a small business concern, (ii) procedures which have been adopted to comply with the policies set forth in this clause, and (iii) with respect to the letting of any subcontract (including purchase orders) exceeding \$10,000, information substantially as follows:

- (A) Whether the award went to large or small business.
- (B) Whether less than three or more than two small business concerns were solicited.
- (C) The reason for non-solicitation of small business if such was the case.
- (D) The reason for small business failure to receive the award if such was the case when small business was solicited.

The records maintained in accordance with (iii) above may be in such form as the Contractor may determine, and the information shall be summarized quarterly and submitted by the purchasing department of each individual plant or division to the Contractor's cognizant small business liaison officer. Such quarterly summaries will be considered to be management records only and need not be submitted routinely to the Government; however, records maintained pursuant to this clause will be kept available for review.

(5) Notify the Contracting Officer before soliciting bids or quotations on any subcontract (including purchase orders) in excess of \$10,000 if (i) no small business concern is to be solicited, and (ii) the Contracting Officer's consent to the subcontract (or ratification) is required by a "Subcontracts" clause in this contract. Such notice will state the Contractor's reasons for non-solicitation of small business concerns, and will be given as early in the procurement cycle as possible so that the Contracting Officer may give SBA timely notice to permit SBA a reasonable period to suggest potentially qualified small business concerns through the Contracting Officer. In no case will the procurement action be held up when to do so would, in the Contractor's judgment, delay performance under the contract.

(6) Include the Utilization of Small Business Concerns clause in subcontracts which offer substantial small business subcontracting opportunities.

(7) Cooperate with the Contracting Officer in any studies and surveys of the Contractor's subcontracting procedures and practices that the Contracting Officer may from time to time conduct.

(8) Submit such information on subcontracting to small business concerns as is called for by the Contracting Officer.

(b) A "small business concern" is a concern that meets the pertinent criteria established by the Small Business Administration and set forth in Paragraph 1-1.701 of the Federal Procurement Regulations.

(c) The Contractor agrees that, in the event he fails to comply with his contractual obligations concerning the small business subcontracting program, this contract may be terminated, in whole or in part, for default.

(d) The Contractor further agrees to insert, in any subcontract hereunder which may exceed \$500,000 and which contains the Utilization of Small Business Concerns clause, provisions which shall conform substantially to the language of this clause, including this paragraph (d), and to notify the Contracting Officer of the names of such subcontractors.

#### 15. UTILIZATION OF CONCERNs IN LABOR SURPLUS AREAS

It is the policy of the Government to place contracts with concerns which will perform such contracts substantially in areas of persistent or substantial labor surplus, where this can be done consistent with the efficient performance of the contract and at prices no higher than are obtainable elsewhere. The Contractor agrees to use his best efforts to place his subcontracts in accordance with this policy. In complying with the foregoing and with paragraph (b) of the clause of this contract entitled "Utilization of Small Business Concerns," the Contractor in placing his subcontracts shall observe the following order of preference: (a) persistent labor surplus area concerns which are also small business concerns; (b) other persistent labor surplus area concerns; (c) substantial labor surplus area concerns which are also small business concerns; (d) other substantial labor surplus area concerns; and (e) small business concerns which are not labor surplus area concerns.

(If the contract amount exceeds \$500,000.00 the following clause is applicable)

#### Labor Surplus Area Subcontracting Program:

(a) The Contractor agrees to establish and conduct a program which will encourage labor surplus area concerns to compete for subcontracts within their capabilities. In this connection, the Contractor shall—

(1) Designate a liaison officer who will (i) maintain liaison with duly authorized representatives of the Government on labor surplus area matters, (ii) supervise compliance with the Utilization of Concerns in Labor Surplus Areas clause, and (iii) administer the Contractor's "Labor Surplus Area Subcontracting Program";

(2) Provide adequate and timely consideration of the potentialities of labor surplus area concerns in all "make-or-buy" decisions;

(3) Assure that labor surplus area concerns will have an equitable opportunity to compete for subcontracts, particularly by arranging solicitations, time for the preparation of bids, quantities, specifications, and delivery schedules so as to facilitate the participation of labor surplus area concerns;

(4) Maintain records showing procedures which have been adopted to comply with the policies set forth in this clause; and

(5) Include the Utilization of Concerns in Labor Surplus Areas clause in subcontracts which offer substantial labor surplus area subcontracting opportunities.

(b) A "labor surplus area concern" is a concern which will perform, or cause to be performed, a substantial proportion of any contract awarded to it in "Areas of Substantial Labor Surplus" (also called "Areas of Substantial Unemployment"), as designated by the Department of Labor. A concern shall be deemed to perform a substantial proportion of a contract in a labor surplus area if the costs that the concern will incur on account of manufacturing or production performed in persistent or substantial labor surplus areas (by itself or its first-tier subcontractors) amount to more than 50 percent of the price of such contract.

(c) The Contractor further agrees to insert, in any subcontract hereunder which may exceed \$500,000 and which contains the Utilization of Concerns in Labor Surplus Areas clause, provisions which shall conform substantially to the language of this clause, including this paragraph (c), and to notify the Contracting Officer of the names of such subcontractors.

## 16. SUBCONTRACTS

(a) The Contractor shall give advance notification to the Contracting Officer of any proposed subcontract hereunder which (i) is cost-reimbursement type, time and materials, or labor hour and exceeds \$25,000; or (ii) is fixed price type and exceeds in dollar amount \$100,000; or (iii) is for research and development and exceeds \$25,000.

(b) Each proposed subcontract requiring advance notice shall be reported separately on a form which shall furnish the information requested by Exhibit B, attached, entitled, "Advance Notice of Intent to Subcontract". Also, the Contractor shall comply with all other requirements noted in Exhibit B.

(c) The Contractor shall not, without the prior written consent of the Contracting Officer, place any subcontract which (i) is cost-reimbursement type, time and materials, or labor hour and exceeds \$50,000; or (ii) is fixed-price type and exceeds in dollar amount \$250,000; or (iii) is one of a number of subcontracts under this contract with a single subcontractor for the same or related supplies or services which in the aggregate are expected to exceed \$250,000; or (iv) provides for the fabrication, purchase, rental, installation, or other acquisition, of special tooling or special test equipment having value

in excess of \$10,000 or (v) has experimental, developmental, or research work as one of its purposes and is in excess of \$50,000. The Contracting Officer may in his discretion, ratify in writing any such subcontract; such action shall constitute the consent of the Contracting Officer as required by this paragraph (c).

(d) The Contractor agrees that no subcontract placed under this contract shall provide for payment on a cost-plus-a-percentage-of-cost basis.

(e) The Contracting Officer may, in his discretion, specifically approve in writing any of the provisions of a subcontract. However, such approval or the consent of the Contracting Officer obtained as required by this clause shall not be construed to constitute a determination of the allowability of any cost under this contract, unless such approval specifically provides that it constitutes a determination of the allowability of such cost.

(f) The Contractor shall give the Contracting Officer immediate notice in writing of any action or suit filed, and prompt notice of any claim made against the Contractor by any subcontractor or vendor which, in the opinion of the Contractor, may result in litigation, related in any way to this contract, with respect to which the Contractor may be entitled to reimbursement from the Government.

(g) The Contractor shall report quarterly (the first work day of January, April, July and September) all cost sharing subcontracts executed in the previous quarter and shall furnish the information requested by Exhibit D, attached, entitled "Quarterly Report of Cost Sharing Subcontracts".

#### 17. EXCUSABLE DELAYS

Except with respect to defaults of subcontractors, the Contractor shall not be in default by reason of any failure in performance of this contract in accordance with its terms (including any failure by the Contractor to make progress in the prosecution of the work hereunder which endangers such performance) if such failure arises out of causes beyond the control and without the fault or negligence of the Contractor. Such causes may include, but are not restricted to, acts of God or of the public enemy, acts of the Government in either its sovereign or contractual capacity, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes, and unusually severe weather, but in every case the failure to perform must be beyond the control and without the fault or negligence of the Contractor. If the failure to perform is caused by the failure of a subcontractor to perform or make progress, and if such failure arises out of causes beyond the control of both the Contractor and subcontractor, and without the fault or negligence of either of them, the Contractor shall not be deemed to be in default, unless (a) the supplies or services to be furnished by the subcontractor were obtainable from other sources, (b) the Contracting Officer shall have ordered the Contractor in writing to procure such supplies or services from such other sources, and (c) the Contractor shall have failed to comply reasonably with such order. Upon request of the Contractor, the Contracting Officer shall ascertain the facts and extent of such failure and, if he

shall determine that any failure to perform was occasioned by any one or more of the said causes, the delivery schedule shall be revised accordingly, subject to the rights of the Government under the clause hereof entitled "Termination for Default or for Convenience of the Government."

#### 18. INSPECTION AND CORRECTION OF DEFECTS

(a) All work under this contract shall be subject to inspection and test by the Government (to the extent practicable) at all times (including the period of performance) and places, and in any event prior to acceptance. The Contractor shall provide and maintain an inspection system acceptable to the Government covering the work hereunder. The Government, through any authorized representative, may inspect the plant or plants of the Contractor or of any of its subcontractors engaged in the performance of this contract. If any inspection or test is made by the Government on the premises of the Contractor or a subcontractor, the Contractor shall provide and shall require subcontractors to provide all reasonable facilities and assistance for the safety and convenience of the Government inspectors in the performance of their duties. All inspections and tests by the Government shall be performed in such a manner as will not unduly delay the work. Except as otherwise provided in this contract, final inspection and acceptance shall be made at the place of delivery as promptly as practicable after delivery and shall be deemed to have been made no later than 90 days after the date of such delivery, if acceptance has not been made earlier within such period. To the extent practicable, the inspection concept shall be that of a standard commercial aircraft development program. Inspection audit shall be performed by the Office of Supersonic Transport Development and its designated representatives.

(b) At any time during performance of this contract, but not later than six months (or such other period as may be provided in the Schedule) after acceptance of each of the end items (other than designs, drawings, or reports) to be delivered under this contract, the Contracting Officer may, if he considers it in the best interests of the Government and the SST Program require the Contractor to remedy by correction or replacement, as directed by the Contracting Officer, any failure by the Contractor to comply with the requirements of this contract. Any time devoted to such correction or replacement shall not be included in the computation of the period of time specified in the preceding sentence, except as provided in (d) below. Except as otherwise provided in paragraph (c) below, the allowability of the cost of any such replacement or correction shall be determined as provided in the clause of this contract entitled "Allowable Cost, Fixed Fee and Payment," but no additional fee shall be payable with respect thereto. Corrected articles shall not be tendered again for acceptance unless the former tender and the requirement of correction is disclosed. If the Contractor fails to proceed with reasonable promptness to perform such replacement or correction, the Government (i) may by contract or otherwise perform such replacement or correction and may reduce any fixed fee payable under this contract (or require repayment of any fixed fee theretofore paid) in such amount as may be equitable under the circumstances, or (ii) in the case of articles not delivered, may require the delivery of such articles, and shall have the right to reduce any

fixed fee payable under this contract (or to require repayment of any fixed fee theretofore paid) in such amount as may be equitable under the circumstances, or (iii) may terminate this contract for default. Failure to agree to the amount of any such increased cost to be charged to the Contractor or to such reduction in, or repayment of, the fixed fee shall be deemed to be a dispute concerning a question of fact within the meaning of the clause of this contract entitled "Disputes."

(c) Notwithstanding the provisions of paragraph (b) above, the Government may at any time require the Contractor to remedy by correction or replacement, without cost to the Government, any failure by the Contractor to comply with the requirements of this contract if such failure is due to fraud, lack of good faith or willful misconduct on the part of any of the Contractor's directors or officers, or on the part of any of its managers, superintendents, or other equivalent representatives, who has supervision or direction of (i) all or substantially all of the Contractor's business, or (ii) all or substantially all of the Contractor's operations at any one plant or separate location in which this contract is being performed, or (iii) a separate and complete major industrial operation in connection with the performance of this contract. The Government may at any time also require the Contractor to remedy by correction or replacement, without cost to the Government, any such failure caused by one or more individual employees selected or retained by the Contractor after any such supervisory personnel has reasonable grounds to believe that any such employee is habitually careless or otherwise unqualified.

(d) The provisions of paragraph (b) above shall apply to any corrected or replacement end item or component until six months after its acceptance.

(e) The Contractor shall make its records of all inspection work available to the Government during the performance of this contract and for such longer period as may be specified in this contract.

#### 19. INSURANCE-LIABILITY TO THIRD PERSONS

(a) The Contractor shall procure and thereafter maintain workmen's compensation, employer's liability, comprehensive general liability (bodily injury) and comprehensive automobile liability (bodily injury and property damage) insurance, with respect to performance under this contract, and such other insurance as the Contracting Officer may from time to time require with respect to performance under this contract: Provided, That the Contractor may, with the approval of the Contracting Officer, maintain a self-insurance program; And provided further, That with respect to workmen's compensation the Contractor is qualified pursuant to statutory authority. All insurance required pursuant to the provisions of this paragraph shall be in such form, in such amount, and for such periods of time, as the Contracting Officer may from time to time require or approve, and with insurers approved by the Contracting Officer.

(b) The Contractor agrees, to the extent and in the manner required by the Contracting Officer, to submit for the approval of the Contracting Officer any other insurance maintained by the Contractor in connection with the performance of this contract and for which the Contractor seeks reimbursement hereunder.

(c) The Contractor shall be reimbursed: (1) for the portion allocable to this contract of the reasonable cost of insurance as required or approved pursuant to the provisions of this clause, and (2) for liabilities to third persons for loss of or damage to property (other than property (i) owned, occupied or used by the Contractor or rented to the Contractor or (ii) in the care, custody, or control of the Contractor), or for death or bodily injury, not compensated by insurance or otherwise, arising out of the performance of this contract, whether or not caused by the negligence of the Contractor, his agents, servants or employees: Provided, Such liabilities are represented by final judgments or by settlements approved in writing by the Government and expenses incidental to such liabilities, except liabilities (a) for which the Contractor is otherwise responsible under the express terms of the clause or clauses, if any, specified in the Schedule, or (b) with respect to which the Contractor has failed to insure as required or maintain insurance as approved by the Contracting Officer or (c) which results from willful misconduct or lack of good faith on the part of any of the Contractor's directors or officers, or on the part of any of its managers, superintendents, or other equivalent representatives, who has supervision or direction of (1) all or substantially all of the Contractor's business, or (2) all or substantially all of the Contractor's operations at any one plant or separate location in which this contract is being performed, or (3) a separate and complete major industrial operation in connection with the performance of this contract. The foregoing shall not restrict the right of the Contractor to be reimbursed for the cost of insurance maintained by the Contractor in connection with the performance of this contract, other than insurance required to be submitted for approval or required to be procured and maintained pursuant to the provisions of this clause: Provided, Such cost would constitute allowable cost under the clause of this contract entitled "Allowable Cost, Fixed Fee and Payment."

(d) The Contractor shall give the Government or its representatives immediate notice of any suit or action filed, and prompt notice of any claim made, against the Contractor arising out of the performance of this contract, the cost and expense of which may be reimbursable to the Contractor under the provisions of this contract, and the risk of which is then uninsured or in which the amount claimed exceeds the amount of coverage. The Contractor shall furnish immediately to the Government copies of all pertinent papers received by the Contractor. If the amount of the liability claimed exceeds the amount of coverage, the Contractor shall authorize representatives of the Government to collaborate with counsel for the insurance carrier, if any, in settling or defending such claim. If the liability is not insured or covered by bond, the Contractor shall, if required by the Government, authorize representatives of the Government to settle or defend any such claim and to represent the Contractor in or take charge of any litigation in connection therewith: Provided, That the Contractor may, at his own expense, be associated with the representatives of the Government in the settlement or defense of any such claim or litigation.

(e) The Government hereby agrees to indemnify and hold the Contractor harmless from any liability to the Government or any third party for any death, bodily injury or property damage caused by sonic shock wave propagated by any supersonic airplane being tested under the terms of this contract.

## 20. NEGOTIATED OVERHEAD RATES

(a) Notwithstanding the provisions of the clause of this contract entitled "Allowable Cost, Fixed Fee and Payment", the allowable indirect costs under this contract shall be obtained by applying negotiated overhead rates to bases agreed upon by the parties, as specified below.

(b) The Contractor, as soon as possible, but not later than 180 days after the expiration of each of the Contractor's financial years or such other period as may mutually be agreed upon by the Government and the Contractor, shall submit to the Contracting Officer, via the cognizant audit agency, a proposed final overhead rate or rates for that period based on the Contractor's cost experience during that period, together with supporting cost data. Negotiation of final overhead rates by the Contractor and the Contracting Officer shall be undertaken as promptly as practicable after receipt of the Contractor's proposal.

(c) Allowability of costs and acceptability of cost allocation methods shall be determined in accordance with Subparagraph 1-15.2 of Part 1-15 of the Federal Procurement Regulations, as in effect on the date of this contract.

(d) The results of each negotiation shall be set forth in an amendment to this contract, which shall specify (1) the agreed final rates, (2) the bases to which the rates apply, and (3) the periods for which the rates apply.

(e) Pending establishment of final overhead rates for any period, the Contractor shall be reimbursed either at negotiated provisional rates as provided in the Schedule or at billing rates acceptable to the cognizant Government Auditor, subject to appropriate adjustment when the final rates for that period are established. To prevent substantial over or under payment, the provisional or billing rates may, at the request of either party, be revised by mutual agreement, either retroactively or prospectively. Any such revision of negotiated provisional rates provided in the Schedule shall be set forth in an amendment to this contract.

(f) Any failure by the parties to agree on any final rate or rates under this clause shall be considered a dispute concerning a question of fact for decision by the Contracting Officer within the meaning of the clause of this contract entitled "Disputes".

## 21. AUTHORIZATION AND CONSENT

The Government hereby gives its authorization and consent for all use and manufacture of any invention described in and covered by a patent of the United States in performance of this contract or any part hereof or any amendment hereto or any subcontract hereunder (including any lower-tier subcontract).

22. RIGHTS IN DATA — UNLIMITED

(a) The term "Subject Data" as used herein includes writings, sound recordings, pictorial reproduction, drawings or other graphical representations, and works of any similar nature (whether or not copyrighted) which are specified to be delivered under this contract. The term does not include financial reports, cost analyses and similar information incidental to contract administration.

(b) (1) The Government may duplicate, use, and disclose in any manner and for any purpose whatsoever, and have others so do, all Subject Data delivered under this contract.

(2) The Contractor agrees to and does hereby grant to the Government, and to its officers, agents, and employees acting within the scope of their official duties, a royalty-free, non-exclusive, irrevocable license throughout the world, to publish, translate, deliver, perform, dispose of, and to authorize others so to do all Subject Data now or hereafter covered by copyright.

(3) The Contractor shall report to the Contracting Officer promptly and in reasonably written detail, each notice or claim of copyright infringement with respect to all Subject Data delivered under this contract.

(4) No such copyrighted matter shall be included in technical data furnished hereunder without the written consent of the copyright owner for the Government to use such copyrighted matter in the manner above described.

(c) Nothing contained in this clause shall imply a license to the Government under any patent or be construed as affecting the scope of any license or other right otherwise granted to the Government under any patent.

(d) The Contractor shall not affix any restrictive markings upon any Subject Data, and if such markings are affixed, the Government shall have the right at any time to modify, remove, obliterate or ignore any such markings unless such markings have been approved in writing by the Contracting Officer.

(e) All data initially developed under this contract or any subcontract hereunder, but not specified for delivery, shall be retained by the Contractor or subcontractor for a period of three (3) years following final payment under this contract, or applicable subcontract, and made available for this period at the request of the Government, for the cost of reproduction and handling only.

(f) The Contracting Officer may grant deviations to the requirements of this Clause 22 insofar as subcontractor data is concerned on the basis of demonstrated need.

**23. PRICE REDUCTION FOR DEFECTIVE COST OR PRICING DATA**

(a) If the Contracting Officer determines that any price, including profit or fee, negotiated in connection with this contract was increased by any significant sums because the Contractor, or any subcontractor in connection with a subcontract covered by (c) below, furnished incomplete or inaccurate cost or pricing data or data not current as certified in his Contractor's Certificate of Current Cost or Pricing Data, then such price shall be reduced accordingly and the contract shall be modified in writing to reflect such adjustment.

(b) Failure to agree on a reduction shall be a dispute concerning a question of fact within the meaning of the "Disputes" clause of this contract.

(c) The Contractor agrees to insert the substance of paragraphs (a) and (c) of this clause in each of his cost-reimbursement type, time and material, labor-hour, price redeterminable, or incentive subcontracts hereunder in excess of \$100,000, and in any other subcontract hereunder in excess of \$100,000 unless the price is based on adequate price competition, established catalog or market prices of commercial items sold in substantial quantities to the general public, or prices set by law or regulation. In each such excepted subcontract hereunder which exceeds \$100,000, the Contractor shall insert the substance of the following clause:

**Price Reduction for Defective Cost or Pricing Data—Price Adjustments**

(a) This clause shall become operative only with respect to any change or other modification made pursuant to one or more provisions of this contract which involves a price adjustment in excess of \$100,000 that is not based on adequate price competition, established catalog or market prices of commercial items sold in substantial quantities to the general public, or prices set by law or regulation. The right to price reduction under this clause shall be limited to such price adjustments.

(b) If the Contractor determines that any price, including profit or fee, negotiated in connection with any price adjustment within the purview of paragraph (a) above was increased by any significant sums because the subcontractor or any of his subcontractors in connection with a subcontract covered by paragraph (c) below, furnished incomplete or inaccurate cost or pricing data or data not current as of the date of execution of the subcontractor's certificate of current cost or pricing data, then such price shall be reduced accordingly and the subcontract shall be modified in writing to reflect such adjustment.

(c) The subcontractor agrees to insert the substance of this clause in each subcontract hereunder which exceeds \$100,000.

24. AUDIT AND RECORDS

(a) The Contractor shall maintain books, records, documents, and other evidence and accounting procedures and practices, sufficient to reflect properly all direct and indirect costs of whatever nature claimed to have been incurred and anticipated to be incurred for the performance of this contract. The foregoing constitute "records" for the purposes of this clause.

(b) The Contractor's plants, or such part thereof as may be engaged in the performance of this contract, and his records shall be subject at all reasonable times to inspection and audit by the Contracting Officer or his authorized representative.

(c) The Contractor shall preserve and make available his records (1) until the expiration of three years from the date of final payment under this contract, and (2) for such longer period, if any, as is required by applicable statute, or by other clauses of this contract, or by (i) or (ii) below.

(i) If this contract is completely or partially terminated, the records relating to the work terminated shall be preserved and made available for a period of three years from the date of any resulting final settlement.

(ii) Records which relate to (A) appeals under the "Disputes" clause of this contract or (B) litigation or the settlement of claims arising out of the performance of this contract, shall be retained until such appeals, litigation, or claims have been disposed of.

(d) (1) The Contractor shall insert the substance of this clause, including the whole of this paragraph (d), in each subcontract hereunder that is not on a firm fixed-price basis.

(2) The Contractor shall insert the substance of the following clause in each firm fixed-price subcontract hereunder in excess of \$100,000, except those subcontracts covered by subparagraph (3) below:

Audit

(a) For purposes of verifying that cost or pricing data submitted in conjunction with the negotiation of this contract or any contract change or other modification involving an amount in excess of \$100,000 are accurate, complete, and current, the Contracting Officer, or his authorized representatives, shall, until the expiration of three years from the date of final payment under this contract, have the right to examine those books, records, documents, and other supporting data which will permit adequate evaluation of the cost or pricing data submitted, along with the computations and projections used therein, which were available to the Contractor as of the date of execution of his Contractor's Certificate of Current Cost or Pricing Data.

(b) The Contractor agrees to insert the substance of this clause including this paragraph (b) in all subcontracts hereunder in excess of \$100,000 where the price is not based on adequate price competition, established catalog or market prices of commercial items sold in substantial quantities to the general public, or prices set by law or regulation.

(3) The Contractor shall insert the substance of the following clause in each firm fixed-price subcontract hereunder in excess of \$100,000 where the price is based on adequate price competition, established catalog or market prices of commercial items sold in substantial quantities to the general public, or prices set by law or regulation.

#### Audit—Price Adjustments

(a) This clause shall become operative only with respect to any change or other modification made pursuant to one or more provisions of this contract which involves a price adjustment in excess of \$100,000, that is not based on adequate price competition, established catalog or market prices of commercial items sold in substantial quantities to the general public, or prices set by law or regulation and further provided that such change or other modification to this contract must result from a change or other modification to the Government prime contract.

(b) For purposes of verifying that any cost or pricing data submitted in conjunction with a contract change or other modification involving an amount in excess of \$100,000 are accurate, complete, and current, the Contracting Officer, or his authorized representatives, shall, until the expiration of three years from the date of final payment under this contract, have the right to examine those books, records, documents and other supporting data which will permit adequate evaluation of the cost or pricing data submitted, along with the computations and projections used therein, which were available to the Contractor as of the date of execution of his Contractor's Certificate of Current Cost or Pricing Data.

(c) The Contractor agrees to insert the substance of this clause including this paragraph (c) in all subcontracts hereunder in excess of \$100,000, so as to apply until three years after final payment of the subcontract.

#### 25. SUBCONTRACTOR COST AND PRICING DATA

(a) The Contractor shall require subcontractors hereunder to submit in writing cost or pricing data under the following circumstances:

(1) Prior to award of any cost-reimbursement type, time and material, labor-hour, incentive, or price redeterminable subcontract, the price of which is expected to exceed \$100,000; and

(2) Prior to the award of any other subcontract, the price of which is expected to exceed \$100,000 or to the pricing of any subcontract change or other modification for which the price adjustment is expected to exceed \$100,000, where the price or price adjustment is not based on adequate price competition, established catalog or market prices of commercial items sold in substantial quantities to the general public, or prices set by law or regulation.

(b) The Contractor shall require subcontractors to certify, in substantially the same form as that used in the certificate by the Prime Contractor to the Government, that, to the best of their knowledge and belief, the cost and pricing data submitted under (a) above are accurate, complete, and current as of the date of the execution, which date shall be as close as possible to the date of agreement on the negotiated price of the subcontract or subcontract change or modification.

(c) The Contractor shall insert the substance of this clause including this paragraph (c) in each of his cost-reimbursement type, time and material, labor-hour, price redeterminable, or incentive subcontracts hereunder, and in any other subcontract hereunder which exceeds \$100,000 unless the price thereof is based on adequate price competition, established catalog or market prices of commercial items sold in substantial quantities to the general public, or prices set by law or regulation. In each such excepted subcontract hereunder which exceeds \$100,000, the Contractor shall insert the substance of the following clause:

**Subcontractor Cost and Pricing Data—Price Adjustments**

(a) Paragraphs (b) and (c) of this clause shall become operative only with respect to any change or other modification made pursuant to one or more provisions of this contract which involves a price adjustment in excess of \$100,000. The requirements of this clause shall be limited to such price adjustments.

(b) The Contractor shall require subcontractors hereunder to submit cost or pricing data under the following circumstances:

(1) Prior to award of any cost-reimbursement type, time and material, labor-hour, incentive, or price redeterminable subcontract, the price of which is expected to exceed \$100,000; and

(2) Prior to award of any other subcontract, the price of which is expected to exceed \$100,000, or to the pricing of any subcontract change or other modification for which the price adjustment is expected to exceed \$100,000, where the price or price adjustment is not based on adequate price competition, established catalog or market prices of commercial items sold in substantial quantities to the general public, or prices set by law or regulation.

(c) The Contractor shall require subcontractors to certify, in substantially the same form as that used in the Certificate by the Prime Contractor to the Government, that, to the best of their knowledge and belief, the cost and price data submitted under (b) above are accurate, complete, and current as of the date of the execution, which date shall be as close as possible to the date of agreement on the negotiated price of the contract modification.

(d) The Contractor shall insert the substance of this clause including this paragraph (d) in each subcontract hereunder which exceeds \$100,000.

## 26. GOVERNMENT PROPERTY

(a) The Government shall deliver to the Contractor, for use in connection with and under the terms of this contract, the property described in the Schedule or specifications, together with such related data and information as the Contractor may request and as may reasonably be required for the intended use of such property (hereinafter referred to as "Government-furnished Property"). The delivery or performance dates for the supplies or services to be furnished by the Contractor under this contract are based upon the expectation that Government-furnished Property suitable for use will be delivered to the Contractor at the times stated in the Schedule or, if not so stated, in sufficient time to enable the Contractor to meet such delivery or performance dates. In the event that Government-furnished Property is not delivered to the Contractor by such time or times, the Contracting Officer shall, upon timely written request made by the Contractor, make a determination of the delay occasioned the Contractor and shall equitably adjust the estimated cost, fixed fee, or delivery or performance dates, or all of them, and any other contractual provisions affected by such delay, in accordance with the procedures provided for in the clause of this contract entitled "Changes." In the event that Government-furnished Property is received by the Contractor in a condition not suitable for the intended use, the Contractor shall, upon receipt thereof notify the Contracting Officer of such fact and act as directed by the Contracting Officer. Upon completion of such action the Contracting Officer upon written request of the Contractor shall equitably adjust the estimated cost, fixed fee, or delivery or performance dates, or all of them, and any other contractual provision affected by the return or disposition, or the repair or modification, in accordance with the procedures provided for in the clause of this contract entitled "Changes." The foregoing provisions for adjustment are exclusive and the Government shall not be liable to suit for breach of contract by reason of any delay in delivery of Government-furnished Property or delivery of such property in a condition not suitable for its intended use.

(b) Title to all property furnished by the Government shall remain in the Government. Title to all property purchased by the Contractor, for the cost of which the Contractor is entitled to be reimbursed as a direct item of cost under this contract, shall pass to and vest in the Government upon delivery of such property by the vendor. Title to other property, the cost of which is reimbursable to the Contractor under the contract, shall pass to and vest in the Government upon (i) issuance for use of such property in the performance of this

contract, or (ii) commencement of processing or use of such property in the performance of this contract, or (iii) reimbursement of the cost thereof by the Government in whole or in part, whichever first occurs. All Government-furnished Property, together with all property acquired by the Contractor title to which vests in the Government under this paragraph, are subject to the provisions of this clause and are hereinafter collectively referred to as "Government Property." Contractor-acquired property, cost of which is directly chargeable to this contract, shall become the property of the Government; however, ultimate title to such property and the property acquired or manufactured under Contracts FA-SS-64-4, FA-SS-65-20, or FA-SS-66-5, shall be equitably divided between the Government and the Contractor following the completion or termination of this contract in proportion to each party's contribution of allowable costs and fee credit under each of these contracts.

(c) Title to the Government Property shall not be affected by the incorporation or attachment thereof to any property not owned by the Government, nor shall such Government Property, or any part thereof, be or become a fixture or lose its identity as personality by reason of affixation to any realty. The Contractor agrees to promptly account for all Government Property and to maintain a suitable inventory control system acceptable to the Contracting Officer. Unless otherwise permitted by the Contracting Officer in writing, compliance with the provisions of the Manual for Control of Government Property in Possession of Contractors, (Appendix B, ASPR), as in effect on the date of the contract, which manual is hereby incorporated by reference and made a part of this contract, shall be deemed to be maintenance of a suitable inventory control system. The terms, as defined in this Manual, shall be applicable to the provisions of this contract wherein such terms are used.

(d) The Government Property provided or furnished pursuant to the terms of this contract shall, unless otherwise provided herein, be used only for the performance of this contract.

(e) The Contractor shall maintain and administer in accordance with sound industrial practice, a program, for the maintenance, repair, protection and preservation of Government Property so as to assure its full availability and usefulness for the performance of this contract. The Contractor shall take all reasonable steps to comply with all appropriate directions or instructions which the Contracting Officer may prescribe as reasonably necessary for the protection of Government Property.

(f) (1) The Contractor shall not be liable for any loss of or damage to the Government Property, or for expenses incidental to such loss or damage, except that the Contractor shall be responsible for any such loss or damage (including expenses incidental thereto)—

(i) which results from willful misconduct or lack of good faith on the part of any one of the Contractor's directors or officers, or on the part of any of his managers, superintendents, or other equivalent representatives, who has supervision or direction of:

- (A) all or substantially all of the Contractor's business, or
- (B) all or substantially all of the Contractor's operations at any one plant or separate location in which this contract is being performed, or
- (C) a separate and complete major industrial operation in connection with the performance of this contract;

(ii) which results from a failure on the part of the Contractor, due to the willful misconduct or lack of good faith on the part of any of his directors, officers, or other representatives mentioned in subparagraph (i) above,

- (A) to maintain and administer, in accordance with sound industrial practice, the program for maintenance, repair, protection and preservation of Government Property as required by paragraph (e) hereof, or
- (B) to take all reasonable steps to comply with any appropriate written directions of the Contracting Officer under paragraph (e) hereof;

(iii) for which the Contractor is otherwise responsible under the express terms of the clause or clauses designated in the Schedule;

(iv) which results from a risk expressly required to be insured under this contract, but only to the extent of the insurance so required to be procured and maintained, or to the extent of insurance actually procured and maintained, whichever is greater; or

(v) which results from a risk which is in fact covered by insurance or for which the Contractor is otherwise reimbursed, but only to the extent of such insurance or reimbursement; provided that, if more than one of the above exceptions shall be applicable in any case, the Contractor's liability under any one exception shall not be limited by any other exception. This clause shall not be construed as relieving a subcontractor from liability for loss or destruction of or damage to Government Property in his possession or control, except to the extent that the subcontract, with the prior approval of the Contracting Officer, may provide for the relief of the subcontractor from such liability. In the absence of such approval, the subcontract shall contain appropriate provisions requiring the return of all Government Property in as good condition as when received, except for reasonable wear and tear or for the utilization of the property in accordance with the provisions of the prime contract.

(2) The Contractor shall not be reimbursed for, and shall not include as an item of overhead, the cost of insurance, or any provision for a reserve, covering the risk of loss of or damage to the Government Property, or the Contractor's proportionate equitable interest in such property, except to the extent that the Government may have required the Contractor to carry such insurance under any other provisions of this contract.

(3) Upon the happening of loss or destruction of or damage to the Government Property, the Contractor shall notify the Contracting Officer or his designated representative thereof; and shall take all reasonable steps to protect the Government Property from further damage, separate the damaged and undamaged Government Property, put all the Government Property in the best possible order, and furnish to the Contracting Officer a statement of all the details concerning the loss or damage and the insurance coverage, if any. The Contractor shall make repairs and renovations of the damaged Government Property or take such other action, as the Contracting Officer directs.

(4) In the event the Contractor is indemnified, reimbursed, or otherwise compensated for any loss or destruction of or damage to the Government Property, he shall use the proceeds to repair, renovate or replace the Government Property involved, or shall credit such proceeds against the cost of the work covered by the contract, or shall otherwise reimburse the Government, as directed by the Contracting Officer. The Contractor shall do nothing to prejudice the Government's right to recover against third parties for any such loss, destruction or damage and, upon the request of the Contracting Officer, shall, at the Government's expense, furnish to the Government all reasonable assistance and cooperation (including the prosecution of suit and the execution of instruments of assignment in favor of the Government) in obtaining recovery. In addition, where the subcontractor has not been relieved from liability for any loss or destruction of or damage to Government Property, the Contractor shall enforce the liability of the subcontractor for such loss or destruction of or damage to the Government Property for the benefit of the Government.

(5) The Government shall not be entitled to share in any insurance proceeds if the premiums for such insurance are, in accordance with paragraphs (f) (2) and (4) above, not charged either directly or indirectly to this contract.

(g) The Government shall at all reasonable times have access to the premises where any of the Government Property is located.

(h) The Government Property shall remain in the possession of the Contractor for such period of time as is required for the performance of this contract unless the Contracting Officer determines that the interests of the Government require removal of such property. In such case the Contractor shall promptly take such action as the Contracting Officer may direct with respect to the removal and shipping of Government Property. In any such instance, the contract may be amended to accomplish an equitable adjustment in the terms and provisions thereof.

(i) Upon the completion of this contract, or at such earlier dates as may be fixed by the Contracting Officer, the Contractor shall submit to the Contracting Officer in a form acceptable to him, inventory schedules covering all items of the Government Property not consumed in the performance of this contract, or not theretofore delivered to the Government, and shall deliver or make such other disposal of such Government Property as may be directed or authorized by the Contracting Officer. The net proceeds of any such disposal

shall be credited to the cost of the work covered by the contract or shall be paid in such manner as the Contracting Officer may direct. The foregoing provisions shall apply to scrap from Government Property; provided, however, that the Contracting Officer may authorize or direct the Contractor to omit from such inventory schedules any scrap consisting of faulty castings or forgings, or cutting and processing waste, such as chips, cuttings, borings, turnings, short ends, circles, trimmings, clippings, and remnants, and to dispose of such scrap in accordance with the Contractor's normal practice and account therefor as a part of general overhead or other reimbursable cost in accordance with the Contractor's established accounting procedures.

(j) Unless otherwise provided herein, the Government shall not be under any duty or obligation to restore or rehabilitate, or to pay the costs of the restoration or rehabilitation of the Contractor's plant or any portion thereof which is affected by the removal of any Government Property.

(k) Directions of the Contracting Officer and communications of the Contractor issued pursuant to this clause shall be in writing.

(l) By notice in writing, the Contracting Officer may: (i) decrease any Government owned property furnished or to be furnished by the Government under any of the provisions of this contract, or (ii) substitute other Government-owned property for property to be furnished by the Government, or to be acquired by the Contractor for use under this contract. The Contractor shall promptly take such action as the Contracting Officer may direct with respect to the removal and shipping of property covered by such notice. In the event of any decrease in or substitution of property pursuant to this paragraph, the Contracting Officer, upon the written request of the Contractor (or, if the substitution of the property causes a decrease in the cost of performance, upon his own initiative), shall equitably adjust such contractual provisions as may be affected by the decrease or substitution. Failure of the parties to agree upon such equitable adjustment shall be considered a dispute and subject to the clause of this contract entitled, "Disputes".

(m) The Contractor shall have the full and exclusive right to possession, use and control of all airplanes and other contract equipment during Phase III and any follow-on phase up to airplane certification, including the right to modify the airplane and other equipment in any manner deemed appropriate by the Contractor for performance of this contract and any follow-on phase effort.

(n) Upon recovery by the Government in accordance with Article XIV hereof, of its investment in the program, title to the airplanes and other equipment produced under this contract shall pass to and vest in the Contractor.

(o) At any time during the performance of this contract or upon completion, the Contractor shall have the option to acquire free title to either prototype airplane by buying out the Government's interest at a price to be negotiated. The price shall be reasonably related to the then estimated recurring production cost of a replacement airplane, taking into account the depreciated condition of the airplane at the time the option is exercised.

27. RENEGOTIATION

(a) To the extent required by law, this contract is subject to the Renegotiation Act of 1951 (50 U.S.C. App. 1211, et seq.), as amended, and to any subsequent act of Congress providing for the renegotiation of contracts. Nothing contained in this clause shall impose any renegotiation obligation with respect to this contract or any subcontract hereunder which is not imposed by an act of Congress heretofore or hereafter enacted. Subject to the foregoing, this contract shall be deemed to contain all the provisions required by Section 104 of the Renegotiation Act of 1951, and by any such other act, without subsequent contract amendment specifically incorporating such provisions.

(b) The Contractor agrees to insert the provisions of this clause, including this paragraph, in all subcontracts, as that term is defined in Section 103g of the Renegotiation Act of 1951, as amended.

28. NOTICE TO THE GOVERNMENT OF LABOR DISPUTES

(a) Whenever the Contractor has knowledge that any actual or potential labor dispute is delaying or threatens to delay the timely performance of this contract, the Contractor shall immediately give notice thereof, including all relevant information with respect thereto, to the Contracting Officer.

(b) The Contractor agrees to insert the substance of this clause, including this paragraph (b), in any subcontract hereunder as to which a labor dispute may delay the timely performance of this contract; except that each such subcontract shall provide that in the event its timely performance is delayed or threatened by delay by any actual or potential labor dispute, the subcontractor shall immediately notify his next higher tier subcontractor, or the prime contractor, as the case may be, of all relevant information with respect to such dispute.

29. QUALITY OF MATERIALS, WORKMANSHIP, AND DESIGN

Any equipment to be furnished under this contract shall be manufactured and processed in a careful and workmanlike manner. All details of design, construction and installation shall present a neat appearance and shall accord with the best commercial standards and practices.

30. OTHER CONTRACTORS

(a) The Government may undertake or award other contracts for additional or related work, and the Contractor shall fully cooperate with such other contractors and Government employees and carefully fit its own work to such additional work.

(b) The foregoing paragraph shall be included in the contracts of all contractors with whom this Contractor will be required to cooperate. The Government shall equitably enforce this clause as to all contractors, to prevent the imposition of unreasonable burdens on any contractor.

**31. GRATUITIES**

(a) The Government may, by written notice to the Contractor, terminate the right of the Contractor to proceed under this contract if it is found, after notice and hearing, by the Administrator or his duly authorized representative, that gratuities (in the form of entertainment, gifts, or otherwise) were offered or given by the Contractor, or any agent or representative of the Contractor, to any officer or employee of the Government with a view toward securing a contract or securing favorable treatment with respect to the awarding or amending, or the making of any determinations with respect to the performing of such contract; provided, that the existence of the facts upon which the Administrator or his duly authorized representative makes such findings shall be in issue and may be reviewed in any competent court.

(b) In the event this contract is terminated as provided in paragraph (a) hereof, the Government shall be entitled (i) to pursue the same remedies against the Contractor as it could pursue in the event of a breach of the contract by the Contractor and (ii) as a penalty in addition to any other damages to which it may be entitled by law, to exemplary damages in an amount (as determined by the Administrator or his duly authorized representative) which shall be not less than three nor more than ten times the costs incurred by the Contractor in providing any such gratuities to any such officer or employee.

(c) The rights and remedies of the Government provided in this clause shall not be exclusive and are in addition to any other rights and remedies provided by law or under this contract.

**32. NOTICE TO THE GOVERNMENT REGARDING LATE DELIVERY**

In the event the Contractor encounters difficulty in meeting performance requirements, or anticipates difficulty in complying with the contract delivery schedule or date, the Contractor shall immediately notify the Contracting Officer thereof in writing, giving pertinent details, including the date by which it expects to complete performance or make delivery; provided, however, that this data shall be informational only in character and that receipt thereof shall not be construed as a waiver by the Government of any contract delivery schedule or date, or any rights or remedies provided by law or under this contract.

**33. INTERPRETATION OR MODIFICATION**

No oral statement of any person, and no written statement of anyone other than the Contracting Officer, or his authorized representative, shall modify or otherwise affect the terms or meaning of the Schedule or any contract resulting therefrom. All requests for interpretations or modifications should be made in writing to the Contracting Officer.

34. EQUAL OPPORTUNITY COMPLIANCE REPORTING

(The following clause is applicable unless this contract is exempt under the rules and regulations of the President's Committee on Equal Employment Opportunity. Exemptions are defined in the clause of this contract titled "Equal Opportunity".)

If the price of this contract or any first-tier subcontract awarded hereunder is \$50,000 or more (\$100,000 or more if solely for standard commercial supplies or raw materials) and if the Contractor or first-tier subcontractor has 50 or more employees at any time during the performance of the contract or subcontract, the Contractor shall submit, and shall require such subcontractor to submit, Standard Form 40 ("Compliance Report") or Form EEO-10 ("Plans for Progress Report") to the President's Committee on Equal Employment Opportunity, in accordance with the Instructions printed with Standard Form 40. For each Standard Form 40 or Form EEO-10 submitted by the Contractor or subcontractor to the President's Committee during the life of this contract, the Contractor, not later than 15 days after his own submittal and 30 days after a subcontractor's submittal, shall submit a completed Standard Form 40A to the Contracting Officer. The Contracting Officer will furnish the Contractor with copies of Standard Forms 40 and 40A. If the price of this contract is \$50,000 or more (\$100,000 or more if solely for standard commercial supplies or raw materials), the Contractor shall inform the Contracting Officer in writing by January 5 and July 5 of each year during which this contract remains in effect, as follows:

- (a) If a current Standard Form 40A has not been submitted to the Contracting Officer, advise whether the Contractor had as many as 50 employees on January 1 or July 1;
- (b) If a current Standard Form 40A has not been submitted to the Contracting Officer for any first-tier subcontractor or subcontractors performing work under this contract, advise whether such subcontractor or subcontractors were subject on January 1 or July 1 to the Standard Form 40 reporting requirements; and
- (c) If no subcontract has been awarded by January 1 or July 1 for the performance of work under this contract, so inform the Contracting Officer.

As used in this clause, "subcontracts" include purchase orders and "subcontractors" include vendors.

35. PRIORITIES, ALLOCATIONS AND ALLOTMENTS

The Contractor shall follow the provisions of DMS Reg. No. 1 and all other applicable regulations and orders of the Business and Defense Services Administration in obtaining controlled materials and other products and materials required for the performance of this contract. The Contractor is assigned priority rating DX-A-1 for performance of the work required under this contract.

EXHIBIT A  
STATEMENT OF WORK

A. Introduction

During Phase III of the Supersonic Transport (SST) Program, the Contractor will complete the detailed design and will manufacture and test two (2) prototype airplanes.

B. Program Requirements

1. Design the airplane and tooling necessary to manufacture two prototype airplanes.
2. Manufacture or procure, assemble and test the airplane and its components.
3. Conduct a comprehensive test program in support of the airplane development.
4. Complete a 100 hour flight test program designed to demonstrate feasibility of the production airplane.
5. Manufacture or procure, assemble and test the following as required to support the Phase III Program:
  - a. Ground Support Equipment
  - b. Training and Training Equipment
  - c. Spares
  - d. Mockups
  - e. Simulation Equipment
  - f. Data and Handbooks
6. Perform all required airplane/engine design coordination and support all required airplane/engine joint tests.
7. Prepare a proposal for the follow-on program.
8. Establish a production specification together with warranties and guarantees that the contractor is willing to offer the airline customers.

9. Establish a schedule for certification and production airplane deliveries.
10. Submit data in accordance with the Data Requirements List, Exhibit E.

**C. SST Program Milestones**

**1. Phase III Program Milestones**

Based on a go-ahead of January 1, 1967, the following Phase III program milestones will be used as checkpoints:

<u>Title</u>	<u>Calendar Year Quarter</u>
Start Full-Scale Class II Airplane Mockup	First Quarter, 1967
Start Structure Design Releases	Second Quarter, 1967
Start Parts Fabrication	Third Quarter, 1967
Start 1/3 Scale Supersonic Engine Inlet Test (AEDC)	Fourth Quarter, 1967
Start Fabrication of Major Tools	First Quarter, 1968
Flight Deck Simulator Checkout	Second Quarter, 1968
Complete 90 percent Structure Releases	Third Quarter, 1968
Fuselage - Over-wing Body - On Dock	Fourth Quarter, 1968
First Ground Test Engine - On Dock - Boeing	First Quarter, 1969
Start Joining of Wing and Body Sections	First Quarter, 1969
Start Engine Ground Test (Boeing)	Second Quarter, 1969
Roll-Out Number One Prototype	Third Quarter, 1969
First Flight Test Status Engine On Dock, Engine Buildup Contractor	Third Quarter, 1969
Number One Prototype First Flight	Fourth Quarter, 1969

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<u>Title</u>	<u>Calendar Year Quarter</u>
Number Two Prototype First Flight	First Quarter, 1970
Complete 100 Hours Flight Test	Second Quarter, 1970

C. 2. Follow-on Phase Milestones -

The following SST Development Program milestones beyond Phase III can be achieved if the program is continued without interruption and with timely and adequate funding:

<u>Title</u>	<u>Calendar Year Quarter</u>
First Production Flight Test Status Engine On-Dock, Engine Buildup Contractor	Third Quarter, 1972
First Production Airplane Roll-out	Fourth Quarter, 1972
First Flight Number 1 Production Airplane	First Quarter, 1973
FAA Certification Complete	Second Quarter, 1974
Reach Three Per Month Delivery Rate	Fourth Quarter, 1974

D. Contract Performance Criteria

1. General

The program requirements set forth in Items 1 through 6 of paragraph B of this Exhibit A will be satisfied when the Contractor has completed the 100 hour flight test program and has substantiated that the prototype airplane performance, when adjusted for the differences between the prototype and production configurations, can meet the requirements set forth in paragraph D.2.b of this Exhibit A. Substantiation of the performance requirements will be based on data obtained during the 100 hour flight test program as corrected by analysis for differences between the prototype and the production configuration. When an analysis substantiating a particular requirement is complete it will be submitted to the FAA. Acceptance of the analysis, as evidenced by a letter from the Contracting Officer, will constitute satisfaction of the particular performance requirement.

**D. 2. Airplane Performance Criteria**

**a. General**

The prototype airplane shall be a four-engine, land-based supersonic transport airplane. The prototype shall, within practical and economic limits, be representative of the initial production airplane and suitable for supporting the certification of the production airplane. To provide a representative test airplane, the prototype shall be designed to have the same aerodynamic configuration and dimensions as the basic production airplanes.

The structural design weight of the prototype will be 635,000 pounds. Flight test status engines of the type planned for production installation will be used on the prototype. The prototype will be capable of flying at a maximum operating Mach number ( $M_{MO}$ ) of 2.7 based on a U. S. Standard Day Atmosphere for a sufficient period of time to establish steady state temperature conditions. All subsystems will be utilized during the 100 hour flight test program although certain items may not be installed and/or operable for a specific flight. The prototype shall be suitable for use in flight and ground handling test programs to establish the general operating characteristics of the production commercial supersonic transport. The objective of the 100 hour flight test program is to obtain maximum technical data for the furtherance of product development.

The prototype performance, when adjusted for the differences between the prototype and production configurations, is the same as the production airplane requirements.

**b. Performance Requirements/Boeing Model 2707 (GE)**

**(1) LIFTOFF SPEED**

The liftoff speed shall not be more than 162 knots equivalent airspeed at the certificated maximum takeoff weight and with the airplane in takeoff configuration.

**(2) TAKEOFF DISTANCE**

The certificated takeoff field length shall be  $7,400 \pm 700$  feet for the certificated maximum takeoff weight on an 86°F day at sea level. The airplane shall be capable of a safe takeoff in a 30 knot, 90 degree crosswind.

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<u>Title</u>	<u>Calendar Year Quarter</u>
Number Two Prototype First Flight	First Quarter, 1970
Complete 100 Hours Flight Test	Second Quarter, 1970

C. 2. Follow-on Phase Milestones -

The following SST Development Program milestones beyond Phase III can be achieved if the program is continued without interruption and with timely and adequate funding:

<u>Title</u>	<u>Calendar Year Quarter</u>
First Production Flight Test Status Engine On-Dock, Engine Buildup Contractor	Third Quarter, 1972
First Production Airplane Roll-out	Fourth Quarter, 1972
First Flight Number 1 Production Airplane	First Quarter, 1973
FAA Certification Complete	Second Quarter, 1974
Reach Three Per Month Delivery Rate	Fourth Quarter, 1974

D. Contract Performance Criteria

1. General

The program requirements set forth in Items 1 through 6 of paragraph B of this Exhibit A will be satisfied when the Contractor has completed the 100 hour flight test program and has substantiated that the prototype airplane performance, when adjusted for the differences between the prototype and production configurations, can meet the requirements set forth in paragraph D. 2. b of this Exhibit A. Substantiation of the performance requirements will be based on data obtained during the 100 hour flight test program as corrected by analysis for differences between the prototype and the production configuration. When an analysis substantiating a particular requirement is complete it will be submitted to the FAA. Acceptance of the analysis, as evidenced by a letter from the Contracting Officer, will constitute satisfaction of the particular performance requirement.

**D. 2. Airplane Performance Criteria**

**a. General**

The prototype airplane shall be a four-engine, land-based supersonic transport airplane. The prototype shall, within practical and economic limits, be representative of the initial production airplane and suitable for supporting the certification of the production airplane. To provide a representative test airplane, the prototype shall be designed to have the same aerodynamic configuration and dimensions as the basic production airplanes.

The structural design weight of the prototype will be 635,000 pounds. Flight test status engines of the type planned for production installation will be used on the prototype. The prototype will be capable of flying at a maximum operating Mach number ( $M_{MO}$ ) of 2.7 based on a U. S. Standard Day Atmosphere for a sufficient period of time to establish steady state temperature conditions. All subsystems will be utilized during the 100 hour flight test program although certain items may not be installed and/or operable for a specific flight. The prototype shall be suitable for use in flight and ground handling test programs to establish the general operating characteristics of the production commercial supersonic transport. The objective of the 100 hour flight test program is to obtain maximum technical data for the furtherance of product development.

The prototype performance, when adjusted for the differences between the prototype and production configurations, is the same as the production airplane requirements.

**b. Performance Requirements/Boeing Model 2707 (P&W)**

**(1) LIFTOFF SPEED**

The liftoff speed shall not be more than 162 knots equivalent airspeed at the certificated maximum takeoff weight and with the airplane in takeoff configuration.

**(2) TAKEOFF DISTANCE**

The certificated takeoff field length shall be  $7,600 \pm 800$  feet for the certificated maximum takeoff weight on an 86°F day at sea level. The airplane shall be capable of a safe takeoff in a 30 knot, 90 degree crosswind.

D. 2. Airplane Performance Criteria (cont.)

b. (3) RANGE, PAYLOAD AND CRUISE SPEED

The airplane shall be capable of carrying a payload of 66,000 pounds a distance of 4,000 statute miles at a cruise speed of not less than Mach 2.7, with 47,300 pounds of fuel remaining on arrival over destination. This mission will be accomplished with a certificated takeoff gross weight that will not exceed the field length takeoff limitations defined in paragraph D.2.b (2) above and will not exceed the sonic boom overpressure defined in paragraph D.2.b. (8) and with an operational empty weight defined for this requirement as 287,500 pounds.

(4) FINAL APPROACH SPEED

The final approach speed shall not be more than 132 knots equivalent airspeed at a gross weight of 430,000 pounds, and with the airplane in landing configuration.

(5) LANDING DISTANCE

The certificated landing field length shall be  $6,300 \pm 600$  feet at 430,000 pounds gross weight at sea level on a standard day.

The airplane shall be capable of being landed safely in a 30 knot, 90 degree crosswind.

(6) AIRPORT NOISE

The perceived noise level resulting from takeoff shall not exceed 117 PNdb measured at any point on a line 1,500 feet from and parallel to the runway centerline, at any certificated gross weight.

(7) COMMUNITY NOISE

(a) Takeoff Noise

The perceived noise level, following thrust reduction to maintain a 500-foot-per-minute rate of climb, shall not exceed 95 PNdb measured at a point on the ground directly under the airplane and one statute mile from the departure end of a 10,500 foot runway, at any certificated gross weight.

D. 2. Airplane Performance Criteria (cont.)

b. (7) (b) Approach Noise

With engine thrust required for the certificated landing configuration consistent with the landing runway requirement of paragraph D.2.b. (5) on a glideslope approach path of three degrees which crosses the approach end of the runway at a 50 foot height, and at a gross weight of 430,000 pounds; the perceived noise level shall not exceed 107 PNdb measured at a point on the ground directly beneath the airplane and one statute mile from the approach end of the runway.

(8) SONIC BOOM

(a) Acceleration

Maximum ground overpressure during acceleration to supersonic cruise shall not exceed 2.0 pounds per square foot at ranges up to 3,000 statute miles and 2.5 pounds per square foot at ranges in excess of 3,000 statute miles.

(b) Cruise and Deceleration

Maximum ground overpressure during cruise and deceleration shall not exceed 1.5 pounds per square foot at ranges up to 3,000 statute miles and 1.9 pounds per square foot at ranges in excess of 3,000 statute miles.

(9) LANDING GEAR WHEEL LOADING

The flotation characteristics shall be equal to or better than that of a DC-8 Series 55 at a gross weight of 328,000 pounds for the following pavement types:

(a) Flexible pavements having a ratio of pavement depth to the subgrade strength satisfactory for operation of the noted DC-8 aircraft. This baseline depth/subgrade curve is derived in accordance with FAA Advisory Circular AC 150/5320-6, dated June 1964.

(b) Rigid pavement with a concrete thickness of 12.0 inches and K (Modulus of subgrade reaction) of 300 pounds per cubic inch.

D. 2. Airplane Performance Criteria (cont.)

b. (3) RANGE, PAYLOAD AND CRUISE SPEED

The airplane shall be capable of carrying a payload of 66,000 pounds a distance of 4,000 statute miles at a cruise speed of not less than Mach 2.7, with 42,600 pounds of fuel remaining on arrival over destination. This mission will be accomplished with a certificated takeoff gross weight that will not exceed the field length takeoff limitations defined in paragraph D. 2. b (2) above and will not exceed the sonic boom overpressure defined in paragraph D. 2. b (8) and with an operational empty weight defined for this requirement as 285,760 pounds.

(4) FINAL APPROACH SPEED

The final approach speed shall not be more than 131 knots equivalent airspeed at a gross weight of 420,000 pounds, and with the airplane in landing configuration.

(5) LANDING DISTANCE

The certificated landing field length shall be  $6,200 \pm 600$  feet at 420,000 pounds gross weight at sea level on a standard day.

The airplane shall be capable of being landed safely in a 30 knot, 90 degree crosswind.

(6) AIRPORT NOISE

The perceived noise level resulting from takeoff shall not exceed 117 PNdb measured at any point on a line 1,500 feet from and parallel to the runway centerline, at any certificated gross weight.

(7) COMMUNITY NOISE

(a) Takeoff Noise

The perceived noise level, following thrust reduction to maintain a 500-foot-per-minute rate of climb, shall not exceed 104 PNdb measured at a point on the ground directly under the airplane and one statute mile from the departure end of a 10,500 foot runway, at any certificated gross weight.

D. 2. Airplane Performance Criteria (cont.)

b. (7) (b) Approach Noise  
With engine thrust required for the certificated landing configuration consistent with the landing runway requirement of paragraph D. 2. b (5) on a glideslope approach path of three degrees which crosses the approach end of the runway at a 50 foot height, and at a gross weight of 420,000 pounds; the perceived noise level shall not exceed 116 PNdb measured at a point on the ground directly beneath the airplane and one statute mile from the approach end of the runway.

(8) SONIC BOOM

(a) Acceleration  
Maximum ground overpressure during acceleration to supersonic cruise shall not exceed 2.0 pounds per square foot at ranges up to 3,000 statute miles and 2.5 pounds per square foot at ranges in excess of 3,000 statute miles.

(b) Cruise and Deceleration  
Maximum ground overpressure during cruise and deceleration shall not exceed 1.5 pounds per square foot at ranges up to 3,000 statute miles and 1.9 pounds per square foot at ranges in excess of 3,000 statute miles.

(9) LANDING GEAR WHEEL LOADING

The flotation characteristics shall be equal to or better than that of a DC-8 Series 55 at a gross weight of 328,000 pounds for the following pavement types:

(a) Flexible pavements having a ratio of pavement depth to the subgrade strength satisfactory for operation of the noted DC-8 aircraft. This baseline depth/subgrade curve is derived in accordance with FAA Advisory Circular AC 150/5320-6, dated June 1964.

(b) Rigid pavement with a concrete thickness of 12.0 inches and K (Modulus of subgrade reaction) of 300 pounds per cubic inch.

D. 2. Airplane Performance Criteria (cont.)

b. (10) LANDING CAPABILITIES, WINGS AFT

The airplane shall be capable of being landed and brought to a full stop, with the wings fully aft, at a landing weight of 350,000 pounds, with all drag devices which can be extended with wings fully aft, with all wheel brakes and four engine thrust reversing systems operative, over a 50 foot obstacle, on a wet runway, in 6,900 feet or less, in still air, at sea level, on a standard day.

3. Compliance Conditions:

a. Performance Data

All performance and noise level data are based on U. S. Standard Atmosphere, 1962, geometric, unless otherwise noted, and on the engine performance defined by the following:

- General Electric Model Specification: E 2056 dated September 6, 1966.
- General Electric Engine Performance Card Deck R66FPD228E and Nozzle Performance Card Deck R66FPD228N both dated August 8, 1966.

Takeoff and landing field lengths are based on level, hard surface dry runways at sea level (unless otherwise noted), with no wind and with automatic anti-skid in operation. Range/Payload performance data have been established in accordance with the mission rules of the FAA Supersonic Transport Economic Model Ground Rules Document SST 66-3, revised June 30, 1966.

b. Adjustments

All performance data shall be adjusted for differences between actual engine performance and that set forth in the engine manufacturer's specification and data referenced in paragraph D.3.a above.

c. Allowances

Range performance includes allowances for normal engine bleed and power extraction. The air conditioning and pressurization portion of the normal engine power extraction shall be defined as the amount of engine power that will provide a maximum cabin altitude not greater than 8,000 feet with an average fresh air ventilation rate of at least 15 cubic feet per minute per person

D. 3. Compliance Conditions (cont.):

c. (cont.)

for 300 people plus 20 cubic feet per minute per person for four flight deck crew members. No allowances are included for headwinds or anti-icing.

d. FAR Compliance

Performance specified in paragraph D.2.b (1) through D.2.b (5) is based on FAR 25, Sections 101 to 125, inclusive, effective February 1, 1965, and FAR 121, Section 195, effective November 19, 1965.

e. Airplane Configuration

The performance data are based on the airplane configuration as defined in Model Specification D6-17850 dated September 6, 1966. Appropriate adjustment shall be made for changes in configuration requested or approved by the Procuring Agency that change the performance of the airplane.

f. Use of Adjusted Data

Data derived from tests shall be adjusted, as required, by conventional methods of correction, interpolation, or extrapolation, in accordance with established aeronautical practices, to show compliance.

g. External Noise Calculations

The PN<sub>db</sub> levels will be established by the procedures outlined in SAE Document AIR 878, "Jet Noise Prediction" dated July 10, 1965.

h. Sonic Overpressure Calculations

The sonic boom overpressures shall be verified by the computation procedure outlined in the FAA letter, Mr. Gordon M. Bain to Mr. Maynard L. Pennell, dated September 8, 1964.

E. In accomplishing the work set forth in items 1 through 6 of paragraph B of this Exhibit A, the Contractor will perform the tasks described in the following Key Work Item List. Satisfactory completion of the Key Work Items will be evidenced by the Contractor's certification that the 100 hour flight test program is complete, the substantiation of the Boeing Model 2707 Airplane Performance Requirements and the delivery of the data

D. 2. Airplane Performance Criteria (cont.)

b. (10) LANDING CAPABILITIES, WINGS AFT

The airplane shall be capable of being landed and brought to a full stop, with the wings fully aft, at a landing weight of 350,000 pounds, with all drag devices which can be extended with wings fully aft, with all wheel brakes and four engine thrust reversing systems operative, over a 50 foot obstacle, on a wet runway, in 6,900 feet or less, in still air, at sea level, on a standard day.

3. Compliance Conditions:

a. Performance Data

All performance and noise level data are based on U. S. Standard Atmosphere, 1962, geometric, unless otherwise noted, and on the engine performance defined by the following:

- General Electric Model Specification: E 2056 dated September 6, 1966.
- General Electric Engine Performance Card Deck R66FPD228E and Nozzle Performance Card Deck R66FPD228N both dated August 8, 1966.

Takeoff and landing field lengths are based on level, hard surface dry runways at sea level (unless otherwise noted), with no wind and with automatic anti-skid in operation. Range/Payload performance data have been established in accordance with the mission rules of the FAA Supersonic Transport Economic Model Ground Rules Document SST 66-3, revised June 30, 1966.

b. Adjustments

All performance data shall be adjusted for differences between actual engine performance and that set forth in the engine manufacturer's specification and data referenced in paragraph D.3.a above.

c. Allowances

Range performance includes allowances for normal engine bleed and power extraction. The air conditioning and pressurization portion of the normal engine power extraction shall be defined as the amount of engine power that will provide a maximum cabin altitude not greater than 8,000 feet with an average fresh air ventilation rate of at least 15 cubic feet per minute per person

**D. 3. Compliance Conditions (cont.):**

**c. (cont.)**

for 300 people plus 20 cubic feet per minute per person for four flight deck crew members. No allowances are included for headwinds or anti-icing.

**d. FAR Compliance**

Performance specified in paragraph D. 2. b (1) through D. 2. b (5) is based on FAR 25, Sections 101 to 125, inclusive, effective February 1, 1965, and FAR 121, Section 195, effective November 19, 1965.

**e. Airplane Configuration**

The performance data are based on the airplane configuration as defined in Model Specification D6-17850 dated September 6, 1966. Appropriate adjustment shall be made for changes in configuration requested or approved by the Procuring Agency that change the performance of the airplane.

**f. Use of Adjusted Data**

Data derived from tests shall be adjusted, as required, by conventional methods of correction, interpolation, or extrapolation, in accordance with established aeronautical practices, to show compliance.

**g. External Noise Calculations**

The PN<sub>dB</sub> levels will be established by the procedures outlined in SAE Document AIR 876, "Jet Noise Prediction" dated July 10, 1965.

**h. Sonic Overpressure Calculations**

The sonic boom overpressures shall be verified by the computation procedure outlined in the FAA letter, Mr. Gordon M. Bain to Mr. Maynard L. Pennell, dated September 8, 1964.

**E. In accomplishing the work set forth in items 1 through 6 of paragraph B of this Exhibit A, the Contractor will perform the tasks described in the following Key Work Item List. Satisfactory completion of the Key Work Items will be evidenced by the Contractor's certification that the 100 hour flight test program is complete, the substantiation of the Boeing Model 2707 Airplane Performance Requirements and the delivery of the data**

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A-9

E. (cont.)

items set forth in Exhibit E. Changes to the subsystem specifications referenced in the Key Work Item List will be processed as Category II Changes and submitted in accordance with Article XV of this contract.

KEY WORK ITEM LIST

30-0 SYSTEM INTEGRATION - GENERAL

Liaison will be maintained between all elements of the Contractor's organization as well as the engine contractor, suppliers, and applicable Government agencies to achieve complete system integration.

30-1 OPERATIONAL INTEGRATION

A. Operational Integration

1. Implement an operational integration program to ensure the successful integration of the SST into its operational environment under all weather conditions. Specific areas of integration are mission flexibility, environmental integration, airworthiness compliance and airport suitability. Consideration of sonic boom and noise, safety, product support and human engineering will be included as appropriate in the above areas. Analysis, simulation and flight test will be used to verify operational suitability.

B. Airport Suitability

1. Implement an airport suitability program to ensure the successful integration of the SST throughout the world, and with the operational facilities at each of the following 15 international airports as a minimum: Anchorage International, Friendship International, Logan International, O'Hare International, Detroit Metropolitan Wayne County, Honolulu International, Houston Intercontinental, Los Angeles International, Miami International, John F. Kennedy International, Philadelphia International, Portland International, San Francisco International, Seattle-Tacoma International, and Dulles International.
2. Specific airport areas to be evaluated are:
  - a. Pavement strength
  - b. Underground structures and overpasses
  - c. Refueling facilities
  - d. Holding area and apron size and geometry
  - e. Runway length (minimum 10,500 feet)

OPERATIONAL INTEGRATION (Cont.)

**B. 2. f. Taxiway geometry (fillet size)**

- g. Passenger, cargo, baggage handling and servicing facilities.**
- h. Fire and rescue equipment**
- i. Engine blast protection**
- j. Other maintenance, support, and operational facilities required for normal SST operations.**

**C. Sonic Boom**

- 1. Implement a sonic boom activities program to:**
  - a. Establish test and validation requirements.**
  - b. Determine ground overpressures under the following conditions:**
    - (1) Transonic acceleration**
    - (2) Supersonic climb**
    - (3) Cruise**
    - (4) Descent**
- 2. Develop airplane design to reduce sonic boom effect.**
- 3. Coordinate with NASA and other research activities to appropriately utilize sonic boom data from such activities.**

**D. Airport and Community Noise**

- 1. Implement an airport and community noise activities program to:**
  - a. Develop detailed perceived noise level contours for range and payload flights on both domestic and international missions.**
  - b. Predict levels in overall perceived noise and sound pressure around the airport and community during ground and flight operations.**

OPERATIONAL INTEGRATION (Cont.)

- D. 1. c. Evaluate and validate airplane noise levels during takeoff, climb, landing approach, taxi, parking, and line maintenance engine/airplane operating conditions.
- d. Plot and evaluate noise contours of the 15 international airports for various engine/airplane operating conditions.
- e. Examine methods of airplane operation to reduce noise levels at certain critical points at the airport and in the community.
2. Develop airplane design to reduce airport and community noise.
3. Coordinate with airport operators and the Airport Operator's Council as required.

E. Internal Noise

Implement an internal noise activities program to:

1. Predict, test, analyze and evaluate noise level values in the following areas:
  - (a) Sound pressure level and speech interference level in the appropriate octave frequency bands for the passenger cabin and flight deck.
  - (b) Near field sound pressure levels for all engine operating conditions.
  - (c) Noise reduction and acoustic requirements.
2. Develop airplane design to reduce internal noise.

F. Airline Coordination

Coordinate with the airlines of the free world, the U.S. SST Airline Committee and similar foreign airline committees to facilitate:

1. Exchange of technical information.
2. Airline inputs on design requirements.
3. Standardization of configuration.
4. Establishment of optional and special airline features.

30-2 DESIGN INTEGRATION

Implement a design integration program to ensure subsystem and system compatibility through the use of technical disciplines and engineering aids such as mockups, flight simulators, wind tunnel models and computer programs.

30-3 DESIGN ANALYSIS AND SUPPORT

Continue testing and analysis to develop the configuration. Specific types of testing and analyses are as follows:

A. Aerodynamics and Wind Tunnel

1. Conduct aerodynamic analyses and wind tunnel tests to refine the configuration by:
  - (a) Improving lift/drag ratio throughout the flight speed spectrum.
  - (b) Improving low speed characteristics, including takeoff and landing.
  - (c) Establishing smoothness requirements.
  - (d) Continuing development of aeroelastic models.
  - (e) Reducing sonic boom, airport, and community noise.
  - (f) Determining aerodynamic parameters and derivatives to substantiate performance and stability levels of the airplane.

B. Airplane Performance

1. Enroute
  - (a) Substantiate design potential through range/payload studies for domestic and international flights in accordance with FAA Supersonic Transport Economic Model Ground Rules, Document SST 66-3, revised June 30, 1966.
2. Takeoff and Landing Performance
  - (a) Analyze takeoff performance under standard and nonstandard conditions.
  - (b) Analyze landing performance, runway length and landing speeds.

**DESIGN ANALYSIS AND SUPPORT (Cont.)**

B. 3. Conduct off-design and emergency range/payload performance analyses.

**C. Stability and Control and Handling Qualities**

1. Determine static and maneuver stability characteristics of the flexible airplane through analysis of wind tunnel testing of rigid and flexible models, pressure models, and computer studies.
2. Correlate dynamic model testing and theoretical analyses to develop dynamic stability derivatives for the elastic airplane and define airplane dynamic stability characteristics about all axes.
3. Develop a flight controls system with maximum effectiveness and optimized cross-coupling characteristics. Determine, through wind tunnel testing, aeroelastic analyses, and design work, the elastic airplane response to control inputs; the control capabilities to maneuver the airplane; the control rate and travel requirements; and the control surface hinge moments.
4. Support development of the stability augmentation system which suppresses the structural modes as it damps free airplane perturbations and improves response to control inputs.
5. Employ data and information compiled in Items 1 through 4 in computer studies to analyze emergency airplane handling problems and develop solutions for emergency operations.
6. Provide aerodynamic inputs for complete 6-degree-of-freedom simulator testing to evaluate airplane handling qualities during normal and emergency operations; to evaluate control systems; provide customer demonstrations; and to provide pilot training prior to flight test.
7. Specify stability and control flight test maneuvers; analyze test results and correlate with predictions and simulator test results.
8. Support pilot training in the flight simulator facility.

**D. Weight and Balance Control**

1. Conduct trade studies and complete weight and balance estimates.

**DESIGN ANALYSIS AND SUPPORT (Cont.)**

- D. 2. Generate airplane weights, center of gravity, panel weights, mass movements of inertia and mass balance data.
- 3. Maintain weight control.
- 4. Maintain weight accounting in accordance with SST 65-13, Supersonic Transport Weight and Balance Standard dated September 1, 1965.

**30-4 MATERIALS AND PROCESSES**

- A. Conduct laboratory testing and analysis to evaluate materials to be used in the construction of the airplane, its subsystems and support equipment.
- B. Develop and release supplier-coordinated material specifications.
- C. Develop and release processes for fabrication, installation and environmental protection of materials for engineering and manufacturing design control.
- D. Generate materials and processes data to facilitate: (1) structural trade studies, (2) release of layout and manufacturing drawings, and (3) support of manufacturing and quality control operations.

**30-5 MOCKUPS**

- A. Design and construct a full-size Class II airplane mockup to:
  - 1. Verify configuration design.
  - 2. Use as an engineering aid in hardware design.
  - 3. Develop fabrication and installation information.
- B. Design and construct the following Class I and Class II mockups and additional mockups identified by the Contractor as required to support the Phase III program.
  - 1. Class I Mockups
    - (a) Environmental control system installation mockups
    - (b) Engine details
    - (c) Interior development mockups

MOCKUPS (Cont. )

B. 2. Class II Mockups

- (a) Flight deck
- (b) Engine inlet
- (c) Engine installation
- (d) Prototype passenger cabin
- (e) Maintenance platform
- (f) Engine change kit
- (g) Engine inlet change kit
- (h) Support stand

C. Update and modify as required the Phase II-C mockups.

31-0 PRODUCT ASSURANCE - GENERAL

Expand upon and continue the development of a program which will provide adequate confidence that the end items can be provided and will perform satisfactorily in actual operation. This program will consist of:

A. Design Quality Assurance

1. Develop and maintain integrated engineering plans, procedures, and analysis techniques to attain and verify achievement of airplane and support requirements.
2. Provide design support data central services to include collection, analysis, dissemination and retention of historical equipment experience data.

B. Production Quality Assurance

1. Develop and maintain material control programs which ensure that purchased materials, supplies, services and end items conform to the design specifications.
2. Develop and maintain manufacturing control programs which ensure that in-plant manufactured and assembled items conform to the design specifications.

**PRODUCT ASSURANCE - GENERAL (Cont.)**

**C. Quality Control**

Develop and maintain a quality control system which assures control to prescribed quality standards during procurement and production.

**31-1 MAINTAINABILITY**

Implement and maintain a maintainability program by performing the following:

- A. Update and expand maintainability allocations and design criteria consistent with design progress and data analysis.
- B. Continue to review, evaluate and assess system requirements, trade studies, specifications, test plans, designs, mockups, production controls, manufacturing and inspection processes and the prototype flight test program to assure compliance with maintainability requirements.
- C. Continue to review and incorporate appropriate maintainability requirements in procurement specifications to ensure that the suppliers meet the established requirements.
- D. Ensure compliance with the maintainability provisions contained in the working agreement between the airframe and the engine contractors.
- E. Continue to make periodic prediction of the degree of achievement of maintainability goals and allocations.
- F. Perform periodic reviews of the implementation and adequacy of the maintainability program.

**31-2 RELIABILITY**

Implement and maintain a reliability program by performing the following:

- A. Update and expand reliability apportionments and design reliability criteria consistent with design progress and data analysis.
- B. Complete development and application of mathematical reliability models, block diagrams, and analyses to reflect design developments and assess sensitivity to significant influencing factors.

RELIABILITY (Cont. )

- C. Complete failure mode, effect, and human error analyses on the prototype system, subsystem, and components.
- D. Identify reliability critical items.
- E. Continue review of system requirements, trade studies, specifications, test plans, design, mockups, production controls, manufacturing and inspection processes to ensure incorporation of and compliance with reliability requirements.
- F. Incorporate appropriate reliability requirements in procurement specifications and monitor supplier compliance.
- G. Ensure compliance with the reliability provisions contained in the working agreements between the airframe and the engine contractors.
- H. Implement a reliability test and evaluation program to assess system reliability.
- I. Record, report, distribute, and analyze reliability data and initiate necessary corrective action.
- J. Perform periodic audits of the implementation and adequacy of the approved reliability program.

31-3 QUALITY ASSURANCE

Integrate design quality assurance, production quality assurance, and quality control into a planned and systematic quality assurance program which will be directed by a Quality Program Council. This council will:

- A. Review planned activities to determine their adequacy for supporting the quality assurance program and, where necessary, direct further development.
- B. Monitor departmental systems of program surveillance, control, audit and correction to ensure that they are both positive and effective.
- C. Ensure that departmental quality assurance responsibilities and authority are properly identified and assigned to organizational elements.

31-4 VALUE ENGINEERING

- A. Implement and maintain a value engineering program in the following areas:
  - 1. Airplane and ground support equipment requirements, specifications and designs.
  - 2. Manufacturing and inspection processes.
  - 3. Fabrication and assembly methods and processes.
  - 4. Make-or-buy decisions.
- B. Develop and implement a design cost objectives program.
- C. Identify critical high-cost areas, and by function/cost analysis, determine which offers the greatest potential for cost reduction/avoidance.
- D. Establish and incorporate a value engineering program with suppliers as appropriate.
- E. Continue the development of cost manuals, cost data, and analytical techniques for effective value analysis of new parts, materials, processes, and methods to be used on the SST program.

31-5 CONFIGURATION MANAGEMENT

Implement and maintain a configuration management plan by performing the following:

- A. Maintaining a configuration control system.
- B. Conducting and documenting formal design and inspection reviews.
- C. Establishing and maintaining maximum compatibility with suppliers and engine contractor.
- D. Maintaining the model, subsystem, ground support equipment, and training equipment specifications on a timely basis.

31-6 SAFETY

Implement and maintain a system safety program to:

- A. Continue hazard analyses and safety reviews of the design, mockups, prototype airplanes, test programs, and test data.
- B. Review airline historical safety data, identify safety hazards and define design requirements to preclude recurrence of previous hazardous conditions.
- C. Establish safety requirements in procurement specifications and monitor supplier's designs and tests to ensure compliance.
- D. Participate in failure mode, effect and criticality analyses of subsystem and component designs, identify and classify hazards and assist in their resolution.
- E. Establish safety evaluation criteria and perform fault tree analyses to identify operationally critical failure combinations requiring corrective action.
- F. Perform formal safety engineering inspection of the complete prototype airplane.
- G. Integrate the airframe and engine contractors safety programs.
- H. Audit the effectiveness of the system safety program.

31-7 HUMAN ENGINEERING AND LIFE SUPPORT

Implement and maintain a human engineering program to achieve maximum human performance and man/equipment compatibility. Specific areas shall include:

- A. Conducting workload analyses of flight crew function for normal and contingency operations.
- B. Developing requirements and associated criteria for equipment design, workplace layouts, facilities and procedures associated with system functions requiring human performance.
- C. Developing and testing life support and comfort requirements for flight crew and passengers considering cabin temperature, humidity, pressure, fluctuations, noise, and vibration; as well as emergency evacuation, restraint, and crash protection.

31-8 STANDARDIZATION

- A. Implement and maintain a standardization program to achieve maximum standardization of parts, materials, and processes used in the SST design.
- B. Review and approve material and process specifications and part standards.
- C. Review and evaluate procurement specifications and supplier documents to ensure an effective standardization program.

32-0 AIRFRAME STRUCTURES - GENERAL

Determine the design characteristics for the supersonic transport. Specific areas shall include:

A. Structural Design Criteria

Utilizing applicable Federal Airworthiness Regulations supplemented as necessary to accommodate the new operating environment, establish criteria covering flight and ground loads, dynamic loading, structural analysis and structural allowables.

B. Flutter

1. Conduct analytical flutter studies in the subsonic and supersonic speed regimes.
2. Conduct wind tunnel flutter tests of dynamically scaled models in subsonic, transonic and supersonic tunnels.
3. Identify ground vibration test requirements for the prototype airplane to obtain natural modes and frequencies of the structure.
4. Analyze measurements of damping of structural modes in flight to confirm flutter margins and establish flutter clearance.

C. Vibration

1. Define structural and equipment vibration levels based on predicted acoustic and aerodynamic noise values.
2. Determine vibration at strategic locations on the prototype airplane for conditions of engine operation on the ground, during takeoff and during selected flight conditions.

AIRFRAME STRUCTURES - GENERAL (Cont.)

**D. External Aerodynamic Loads**

1. Determine external loads using theoretical analyses supplemented by wind tunnel tests.
2. Verify analyses by wind tunnel tests.

**E. Structural Heating**

Determine airplane structural temperatures and thermal boundaries through analysis and evaluation of heat tests on major structural components.

**F. Proof Load Tests**

1. Accomplish the following proof load tests:
  - (a) Fuselage proof pressure test - Each prototype airplane will be pressurized to the proof pressure.
  - (b) Control system proof test - One prototype airplane flight control system will be loaded.
  - (c) Landing gear drop test.

**G. Structural Fatigue**

1. Establish detail fatigue load spectrums for each major airplane component considering typical and extreme airplane usage.
2. Accomplish fatigue analysis of specific structural components.
3. Establish fatigue tests for specific structural components.

**H. Sonic Fatigue**

1. Establish sonic test levels and test times based on an evaluation of operational missions and engine generated sound levels.
2. Establish sonic fatigue service life tests for major airframe components.

**AIRFRAME STRUCTURES - GENERAL (Cont.)**

**I. Basic Structural Allowables**

The allowables will include the following:

1. Physical and mechanical properties of materials
2. Joining by welding, brazing and adhesive bonding
3. Joining by mechanical fasteners
4. Sandwich systems
5. Structural elements

J. Initiate structural testing of full-scale airframe test sections built using prototype tooling.

**32-1/ AIRFRAME STRUCTURE - ELEMENTS**  
32-8

A. Complete the design, manufacture or procure, assemble, and test the airframe structure listed below. Design and test will be in accordance with the applicable subsystem specification.

	<u>SUBSYSTEM</u>	<u>SPECIFICATION</u>
32-1	1. Wing	D6A10107-1
32-4	2. Fuselage	D6A10107-1
32-6	3. Landing Gear	D6A10108-1
32-7	4. Aircraft Engine Installation	D6A10113-1
32-8	5. Empennage	D6A10107-1

B. Items of work applicable to each subsystem are as follows:

1. Release specifications, select suppliers, and monitor performance.
2. Prepare and release detail assembly and installation drawings for manufacturing.
3. Design and fabricate required tooling.
4. Manufacture or procure, assemble and install detail parts, components and assemblies.

AIRFRAME STRUCTURE - ELEMENTS (Cont.)

5. Utilize performance, safety, reliability, maintainability, value engineering, stress and human engineering analyses to support design.
6. Utilize mockups to support design, development and evaluation.
7. Conduct development and evaluation tests.

32-9 MANUFACTURING

- A. Implement and maintain a manufacturing program which provides for the planning and control of the manufacture or procurement, assembly and test of all the airframe structure and subsystem components necessary to produce the prototype airplanes.
- B. Accomplish the following manufacturing activities:
  1. Joining and installation of prototype airplane structural and nonstructural components.
  2. Final assembly and installation of associated equipment on the prototype airplanes.
  3. Preflight checkout of prototype airplanes.
  4. Electronic checkout of prototype airplanes.

33-0/ AIRFRAME SUBSYSTEM - GENERAL

34-0

- A. Complete the design, manufacture or procure, assemble, test and install in the prototype airplane the subsystems set forth below. Design and test will be in accordance with the applicable subsystem specification.

	<u>SUBSYSTEM</u>	<u>SPECIFICATIONS</u>
33-1	1. Environmental Control	D6A10121-1
33-3	2. Flight Controls and Hydraulics	D6A10120-1
33-4	3. Electrical Power	D6A10119-1
33-5	4. Accessory Drive	D6A10089-1
33-6	5. Communications/Navigation	D6A10122-1
33-7	6. Flight Deck	D6A10109-1

**AIRFRAME SUBSYSTEM - GENERAL (Cont.)**

	<u>SUBSYSTEM</u>	<u>SPECIFICATION</u>
33-8	7. Aircraft Integrated Data System (AIDS)	D6A10090-1
33-9	8. Fire Detection and Extinguishing	D6A10115-1
34-1	9. Passenger and Cargo Accommodations	D6A10110-1
34-2	10. Landing Gear	D6A10108-1
34-3	11. Engine Inlet Anti-Icing	D6A10117-1
34-4	12. Starting	D6A10078-1

B. Items of work applicable to each subsystem are as follows:

1. Release procurement specifications, select suppliers, and monitor performance.
2. Prepare and release detail assembly and installation drawings for manufacture.
3. Design and fabricate required tooling.
4. Manufacture or procure, assemble and install detail parts and components and assemblies.
5. Utilize performance, safety, reliability, maintainability, value engineering, stress and human engineering analyses to support design.
6. Utilize mockups to support design, development and evaluation.
7. Conduct development evaluation tests.

**35-0 PROPULSION SYSTEM - GENERAL**

Complete the design, manufacture or procure, assemble and test the propulsion system to verify functional and physical integration with the airframe and associated subsystems.

35-1 NOISE

- A. Predict noise levels during engine operations from idle thrust to full power as follows:
  1. The sound pressure levels and perceived noise levels resulting from these engine conditions will be polar-plotted for a distance of 200 feet from the engine.
  2. The near field (0 to 100 feet from the engine) noise levels will be plotted for the maximum dry and maximum augmented conditions.
  3. The structural noise environment will be defined.
- B. Conduct sonic fatigue analysis of the noise levels obtained.
- C. Conduct jet noise suppression studies. Studies will include examination on 1/8 scale model nozzles with follow-on large scale static tests. Flight testing will be conducted on the prototype engines.
- D. Evaluate suppression techniques proposed by the engine contractor to effectively reduce broad band and discrete tone noise levels.
- E. Examine inlet noise suppression, by means of choking, on the prototype engine for ground and flight operations.

35-2 INSTALLED PERFORMANCE

- A. Continue analysis of installed engine performance data based on engine contractor's data as corrected for installed air induction system and inlet-engine stability characteristics, accessory drive power and bleed air extractions and nozzle secondary airflow requirements.
- B. Continue analysis and model tests to determine nacelle drag due to inlet and nozzle operation.
- C. Continue analysis and model tests to establish installed inlet performance and mutual interference characteristics.
- D. Continue analysis and tests of the engine exhaust nozzle to determine installed nozzle performance characteristics over the complete flight envelope.

**INSTALLED PERFORMANCE (Cont.)**

- E. Define the engine operating envelope.
- F. Establish with the engine contractor a mutually acceptable method of measuring the installed engine performance of the prototype engine.

**35-3 ENGINE COORDINATION**

- A. Coordinate with the engine contractor to ensure airframe/engine interface.
- B. Conduct a 1/3 scale inlet test program at AEDC utilizing J-85 engines.
- C. Conduct a full scale air induction subsystem test program at AEDC utilizing the prototype engine.

**35-4 EXHAUST/THRUST REVERSER**

Complete the design, testing and analysis as necessary to integrate the exhaust/thrust reverser furnished by the engine contractor with the prototype airplane. This includes the following:

- A. Complete detail assembly and installation drawings and manufacture or procure and assemble the trailing edge covers.
- B. Continue tests to determine exhaust/reverser performance, effectiveness, reingestion and jet-wake characteristics.
- C. Continue performance, safety, reliability, maintainability, and stress analyses to support the design.
- D. Utilize mockups to develop the integration of the exhaust/thrust reverser with the airplane.
- E. Perform functional tests on the airplane to verify proper system performance of the exhaust/thrust reverser.

**35-5 AIR INDUCTION SYSTEM**

- A. Design, manufacture or procure, assemble and test in accordance with Air Induction Subsystem Specification, D8A10114-1.
- B. Continue scale model tests and analyses to develop inlet performance characteristics and design criteria for:
  1. Internal and external contours
  2. Boundary layer bleed, vortex generator and bypass configurations.

AIR INDUCTION SYSTEM (Cont.)

3. Buzz suppression and stability augmentation devices
4. Takeoff and noise abatement configurations
- C. Design, manufacture or procure, assemble and test a prototype inlet bypass door and mechanism structure for structural integrity and leakage testing.
- D. Incorporate test results into design of the inlet system for the prototype airplanes.
- E. Utilize performance, safety, reliability, maintainability, and stress analysis to support the design.
- F. Utilize mockups to support design and evaluation.

35-6 AIR INDUCTION CONTROL SYSTEM

- A. Design, manufacture or procure, assemble and test in accordance with the Air Induction Control Subsystem Specification, D6A10118-1
- B. Continue bench and scale model tests and analysis to develop performance and design criteria and to verify system concepts and operation.
- C. Conduct a control system computer simulation program in conjunction with analysis and test work to support the design and verification process.
- D. Utilize mockups to develop the control system installation.
- E. Manufacture or procure, assemble and install detail parts, components and assemblies.
- F. Design and construct an operational test rig of a single inlet for use in evaluating system operation under simulated loads and environmental conditions.
- G. Plan and conduct a test program, based on paragraph F. above, to demonstrate the performance capability of the integrated control subsystem.
- H. Conduct system level qualification program.
- I. Determine ground and flight test requirements to verify system performance.

35-7 PROPULSION CONTROLS

- A. Complete the design, testing and analysis to provide a satisfactory propulsion controls subsystem. System response rate, pilot effort, and integration with engine and other airplane subsystems will be developed in accordance with the Aircraft Engine Installation Subsystem Specification, D6A10113-1.
- B. The propulsion controls system development includes:
  - 1. Manufacture or procure, assemble and test the thrust control system and mode selector control system.
  - 2. Utilization of performance, safety, thermal growth, engine compatibility, reliability, maintainability, failure and stress analyses to support the design.
  - 3. Development of mathematical models for predicting air induction system engine performance, operation and control characteristics.

35-8 INSTALLATION

- A. Design and test in accordance with Aircraft Engine Installation Subsystem Specification, D6A10113-1.
- B. Installation requirements include:
  - 1. Completion of detail assembly and installation drawings for the propulsion system.
  - 2. Utilization of performance, safety, value engineering, reliability, maintainability, and stress analyses to support the design.
  - 3. Utilization of mockups to develop the propulsion systems.
  - 4. Testing of plumbing, fittings, and wiring to verify satisfactory performance.

35-9 FUEL SYSTEM

- A. Design, manufacture or procure, assemble and test in accordance with Fuel Subsystem Specification, D6A10116-1.
- B. Fuel system development includes:
  - 1. Release specifications, select suppliers and monitor performance.

**FUEL SYSTEM (Cont.)**

2. Completion of detail, assembly, and installation drawings for the fuel system.
3. Utilization of performance, safety, thermal, reliability, maintainability and stress analyses to support the design.
4. Validation of fuel quantity levels.
5. Design and fabrication of required tooling.
6. Manufacture or procurement, assembly and installation of detail parts and components and assemblies.
7. Utilization of mockups to develop the fuel system arrangement, plumbing, and wiring.
8. Testing of fuel system components and materials.
9. Testing on a fuel system test rig using the fuel specified by the engine manufacturer.
10. Determination of ground and flight test requirements to verify proper fuel system operation.
11. Continuation of inerting tests and studies.

**36-0 SYSTEM TESTS - GENERAL**

Implement and maintain a test integration and management plan.

**36-1 TEST PLANNING AND INTEGRATION**

Implement and maintain a test planning and integration program to provide:

- A. Identification and description of the required tests.
- B. Effective and economical scheduling of the required tests.
- C. Management visibility and disciplines of test activities.

**36-2 FLIGHT SIMULATION**

Design and furnish a flight simulator for development of the:

- A. Stability augmentation and automatic flight control system.

**FLIGHT SIMULATION (Cont.)**

- B. Flight deck display and cab visibility.
- C. Cockpit manual controls.
- D. Flight operating margins.
- E. Crew training.

**36-3 FLIGHT TEST PROGRAM**

- A. Conduct a flight test program of a minimum of 100 flight hours to demonstrate the feasibility of the production airplane specification. The 100 hour flight test program will include, but not be limited to, evaluation of the following areas:
  - 1. Pilot-airframe-engine-control system compatibility during ground and flight.
  - 2. Preliminary static and dynamic stability and controllability, including transonic and supersonic flight.
  - 3. Airport noise measurements during taxi, takeoff and approach.
  - 4. Preliminary verification of predicted takeoff, accelerate-stop, and landing distances.
  - 5. Speed-power determination.
  - 6. System and subsystem environmental capability during maintained high-Mach cruise during typical mission profile.
  - 7. Cruise and acceleration sonic boom overpressure measurements during typical mission profile.
- B. The following estimated allocation of flight hours, by various breakdowns, for the 100 hour flight test program are not fixed requirements under this contract. The parties recognize the need for flexibility in planning and carrying out the program and the allocations shall be subject to updating and revision by the Contractor as the program needs develop or change. Revisions to the estimated flight hour allocation will be reflected in the changes to the Flight Test Plan which will be submitted in accordance with the Exhibit E to this Contract. This contract will not be changed to reflect the changes in the estimated flight hour allocations.

FLIGHT TEST PROGRAM (Cont.)

<u>1. Airspeed</u>	<u>Altitude</u>	<u>Flight Hours</u>
Subsonic	Below 45,000 ft	50
Between Mach 1 and Mach 2	Between 25,000 and 70,000 ft.	30
Above Mach 2	Between 45,000 and 70,000 ft.	20
		<u>Total</u> <u>100</u>
<u>2. Type of Test</u>		<u>Flight Hours</u>
Stalls		
Longitudinal control		
Static longitudinal stability		
Dynamic longitudinal stability		
Maneuvering stability		
Lateral control		
Wing sweep transition		
Static directional stability		
<u>Airplane Performance Tests</u>		19
Cruise performance		
Simulated missions		
Landing performance		
<u>Propulsion System Tests</u>		22
Engine performance & operation		
Air induction system		
<u>Flight Flutter Clearance Tests</u>		17
<u>Airspeed System Calibration, Functional and Ferry Flights</u>		9
		<u>TOTAL</u> <u>100 Hrs.</u>

C. Evaluate airplane flight configurations to include takeoff, initial climb, enroute climb, subsonic cruise, supersonic cruise, approach and normal landing. Takeoffs at various weights up to a gross weight and a center of gravity range sufficient to perform a typical mission profile will be accomplished.

**FLIGHT TEST PROGRAM (Cont.)**

- D. Design, manufacture or procure and install the instrumentation required for the flight test program.
- E. Maintain the prototype and support aircraft and all required instrumentation during the flight test program.

**37-0 PRODUCT SUPPORT - GENERAL**

Implement and maintain a product support program.

**37-1 DATA AND HANDBOOKS**

- A. Implement a program to provide:

1. Data

Prepare technical data for support, operation, maintenance, and overhaul of the prototype airplanes and ground support equipment.

2. Handbooks

- a. Prepare prototype airplane flight and operations manuals using FAR 25 and contractor publication specifications as guides.
- b. Prepare prototype airplane maintenance manuals using both ATA 100 specifications and contractor publication specifications as guides.
- c. Verify the handbook data by analysis using flight test data where applicable.

- B. Develop a plan for preparation of the production flight, maintenance and overhaul manuals.

**37-2 SPARES**

Implement and maintain a spares support program to provide support for the prototype airplane test program. Specific activities shall include:

- A. Selection of spares required to support 100-hour flight test program.
- B. Furnishing of essential spare parts.

SPARES (Cont.)

- C. Maintaining a record of spare parts used on the airplane, and determining consumption data.
- D. Development of the postsale spares support plan for follow-on phases.

**37-3 TRAINING AND TRAINING EQUIPMENT**

Implement a training and training equipment program for the training of contractor and FAA personnel. Specific activities shall include:

- A. Studies and analyses of the operations and maintenance requirements to identify:
  - 1. Specific knowledge and skill requirements for which training is required.
  - 2. Training equipment requirements.
- B. Development of courses of instruction specifically oriented to types of personnel and the knowledge and skills required by these personnel.
- C. Preparation of precourse training packages for use by students prior to attending training courses.
- D. Preparation of course materials and student study and work packages for use during the training course.
- E. Development of new equipment and modification of existing equipment as required to support the operations and maintenance training.
- F. Development of training simulators as required.
- G. Identification of training and training equipment requirements in support of production airplanes.
- H. Conducting of program indoctrination briefings, general familiarization, and detail system operation and maintenance training courses.
- I. Establishing a program of testing and evaluation to correct training deficiency and to develop more effective training for the follow-on phases.

37-4 GROUND SUPPORT EQUIPMENT

Implement a ground support equipment program to support the prototype airplane test program. Maximum use will be made of available contractor equipment, or standard, qualified, commercial or government equipment. Specific activities shall include:

- A. Identification and definition of all GSE requirements for ground handling, servicing and maintenance support.
- B. Design, manufacture or procure, assemble and test GSE for the ground handling, servicing, testing, and maintenance support of the prototype airplane during Phase III.
- C. Conduct a GSE evaluation program during prototype test operations.

37-5 OPERATIONAL (AIRLINE) FACILITIES

Implement an airline facilities program to:

- A. Determine the requirements for, and effect of, the supersonic transport on airline maintenance, overhaul, training, and other support facilities.
- B. Ensure successful integration with airline facilities with emphasis on those airlines with early delivery positions.
- C. Document and coordinate these requirements with the airlines.

37-6 SERVICE ENGINEERING

- A. Initiate a liaison program with the world airlines to determine airline service engineering support requirements.
- B. Initiate an engineering liaison program in support of the prototype flight test program.
- C. Develop a maintenance plan for the prototype airplane and a preliminary maintenance plan for the production airplane.
- D. Develop operational performance data for inclusion in the prototype airplane operations manual.
- E. Develop nondestructive test procedures for scheduled inspections of airplane structure.

38-0 PROGRAM MANAGEMENT - GENERAL

Implement and maintain a program management program.

38-1 DATA MANAGEMENT

Implement and maintain a data management plan during Phase III to accomplish the following:

- A. Identify, describe, catalog, schedule and monitor all pertinent data developed or acquired during Phase III.
- B. Ensure dissemination of all pertinent data to appropriate organizations.
- C. Ensure that data developed is essential to the program.
- D. Ensure that all pertinent data is retained and can be retrieved rapidly.

38-2 PROGRAM MANAGEMENT AND CONTROLS

Implement and maintain a program management and controls plan to achieve maximum program performance and resources control. Specific areas shall include:

A. Cost and Schedule Controls

Implement a cost and schedule control plan which:

1. Identifies and defines the work required to accomplish program objectives starting with the total contract and successively subdividing the work to the account code or charge number level.
2. Identifies the internal organization elements responsible for accomplishing the work and plans, budgets and accumulates the cost of work to be performed.
3. Provides an integrated reporting of cost and schedule status at the specified reporting level of the work breakdown structure.
4. Provides management with timely reports, status feedbacks, adverse trend indications and corrective action, to ensure meeting the program requirements.

B. Subcontract Plan

1. Implement and maintain a subcontract plan which provides for:
  - (a) Identification and make-or-buy review of selected sections of the airplane.

**PROGRAM MANAGEMENT AND CONTROLS (Cont.)**

- (b) Identification of potential and selected suppliers, their geographic location and the items they will supply.
- 2. Implement and maintain systems and disciplines to select sources, negotiate contracts, and monitor supplier activities.

**C. Master Program Plan**

Implement and maintain a master program plan which:

- 1. Describes the work to be performed in Phase III and follow-on phases.
- 2. Describes the progress to be accomplished during Phase III and follow-on phases.
- 3. Provides design, tooling and manufacturing philosophies.

**D. Program Reviews**

Conduct program reviews with the FAA. These reviews will be held on a semi-annual basis with additional reviews as mutually agreed upon.

**E. Detailed Work Plan**

Implement and maintain a detailed work plan to:

- 1. Identify schedules applicable to the discrete items of work.
- 2. Provide a description of each event, schedule of completion, responsible functional organization and criteria for determining completion of the event in the form of an event dictionary.

**F. Management Control Center**

Establish and maintain management control centers containing the information necessary to monitor and control the integration, configuration, accountability and quality of the work to be performed.

38-3 FACILITIES PLAN

- A. Implement and maintain a facilities program, during Phase III to provide the following information:
  - 1. Acquisition of major facilities.
  - 2. Plant layout and space allocation.
  - 3. Usage of multiproject facilities.
  - 4. Usage of supplier facilities.
  - 5. Usage of government facilities.
  - 6. Method of insuring timely availability of facilities.
- B. Determine facilities requirements for follow-on phases.

38-4 ECONOMICS

Conduct analyses and evaluations of the current and probable future economics of the SST Program. Specific areas to be studied are as follows:

- A. Demand Analysis will be studied to analyze the factors influencing the demand for SST travel, SST aircraft, and their impact on the resultant demand for SST's.
- B. Evaluation of the impact of the SST program on the U. S. balance of payments.
- C. Development and production cost studies to determine the long range implications of the program on cost economics.
- D. Airline operating cost will be developed, analyzing the direct and indirect operating cost of the SST.
- E. Investment in peculiar SST support facilities and services at airports of the world.
- F. Financial and economic consequences of the program on the company, the airlines and financial backers such as the Government and the financial community.
- G. Impact of sonic boom on all elements of the program, including demand, financial airline operating cost, airline liability.

38-5 COST ANALYSES

- A. Prepare and maintain the funding requirements for each fiscal year.
- B. Prepare and maintain a Phase IV and V Cost Baseline Report in accordance with the Cost Baseline Report Instruction, SST-65-16, Revision A dated June 30, 1966.

38-6 DELIVERABLE ITEMS

The only deliverable items under this contract are the data items set forth in Exhibit E. The hardware produced under this contract is essential to the satisfactory completion of Phase III and follow-on phases of the SST Development Program. Accountability for the hardware items produced on this contract will be transferred to the follow-on phase contract at the completion of Phase III.

EXHIBIT B

ADVANCE NOTICE OF INTENT TO SUBCONTRACT

1. Description of Proposed Procurement.
2. Proposed Subcontractor or List of Firms to be Solicited.
3. Type of Proposed Subcontract - e.g., FFP, IFP, CPFF, CPIF, Cost-share, etc.
4. Price or Estimated Cost-Plus-Fixed-Fee (Actual or Approximate).
5. Delivery Schedule (Actual or Approximate).
6. Explain any special or unusual features.
7. Estimated date subcontract will be executed.
8. Statement of work element under which the proposed subcontract is to be executed.

NOTE

- a. Advance notice generally will be submitted at the time request is made for proposals from prospective subcontractors, but shall be mailed by the Contractor at least ten (10) days prior to the contemplated award date.
- b. In the event of critical need to proceed, telegraph or telephone notification will be accepted.
- c. Advance notice of proposed subcontracts is for information only and will not constitute a request for approval.
- d. Advance Notice of Intent to Subcontract shall be submitted in triplicate to the Federal Aviation Agency Contracting Officer, Attention: SS-30, with a copy to the Resident DOD Representative.

EXHIBIT C

Government-Furnished Equipment  
Propulsion System Components  
(General Electric)

<u>Item</u>	<u>Description</u>	<u>Qty. Req.</u>	<u>On-Dock Date</u>
1.	Class II engine mockups	2	2-6-67 4-7-67
2.	Updated class II engine mockups (may be rework of item 1)	2	1-7-68 2-7-68
3.	Class III engine mockups (production tolerances)	2	12-7-68 1-8-69
4.	Ground test engines, including accessories, instrumentation, ground support equipment, and spares	4	11-7-68 12-9-68 1-15-69 2-14-69
5.	Nonqualified flight test engines,* including accessories, instrumentation, ground support equipment, and spares	4	2 ea. 8-5-69 2 ea. 9-5-69
6.	Qualified flight test engines, including accessories, instrumentation, ground support equipment, and spares	12	2 ea. per month beginning 10-6-69

Other parts and details shall be provided in accordance with the System Responsibility and Ancillary Agreements between the Contractor and the engine contractor.

\*To be updated to qualified flight test configuration upon completion of engine flight test certification.

EXHIBIT C

Government-Furnished Equipment  
Propulsion System Components  
(Pratt & Whitney)

<u>Item</u>	<u>Description</u>	<u>Qty. Req.</u>	<u>On-Dock Date</u>
1.	Class II engine mockup	1	5-7-67
2.	Updated class II engine mockups (may be rework of item 1 and the class II mockup provided during phase II-C)	2	11-7-67
3.	Class III engine mockups (produc- tion tolerances)	2	1-7-69
4.	Ground test engines, including accessories, instrumentation, ground support equipment, and spares	4	11-7-68 12-9-68 2-13-69 3-7-69
5.	Qualified flight test engines, including accessories, instrumen- tation, ground support equipment, and spares	16	2 ea. per month beginning 8-5-69

Other parts and details shall be provided in accordance with the  
System Responsibility and Ancillary Agreements between the Contractor  
and the engine contractor.

EXHIBIT D

QUARTERLY REPORT OF COST SHARING SUBCONTRACTS

1. Description of the equipment or services and what will be delivered under the subcontract, e.g., hardware, test reports, data.
2. Subcontractor.
3. Type of subcontract.
4. Total amount of subcontract.
5. What is the sharing arrangement?
6. What other bids were received for this subcontract, in what amounts and did they propose a cost share? What did you estimate it would cost?
7. Does the subcontract contain any opt... provisions?
8. If the cost of engineering and tooling is over thirty percent (30%), what are the amounts of these elements?
9. Have all the contractual provisions and performance requirements of the prime contract been passed on to the subcontractor? If not, explain.

EXHIBIT E

DATA REQUIREMENTS LIST

The data items to be delivered to the Government during the performance of this contract are identified in Part I of this Exhibit E by title, date of first submittal after contract award, frequency of required submittal and/or revision and number of copies to be submitted.

The content of each data item is described in Part II of this Exhibit E. Those data items which were initially submitted as part of the proposal for this contract and are to be periodically updated during the performance of this contract are identified by proposal document number. Data items which will be initially submitted after the date of this contract are described as to content.

In addition to the number of copies indicated in Part I, the Contractor shall also deliver one photographic copy, in Microfiche form or equivalent, of all documents and revisions required by this Exhibit E. The Contractor shall also provide, upon the request of the Data Manager of the Federal Aviation Agency Office of Supersonic Transport Development, one photographic copy, in Microfiche form or equivalent, of any document listed in the Data Accession List. All such photographic copies shall be accumulated and submitted once every two months.

Unless specifically directed to the contrary by the Contracting Officer in writing, all required data items will be shipped to:

Federal Aviation Agency  
Office of Supersonic Transport Development  
800 Independence Avenue S. W.  
Washington, D. C. 20553

Attn: Contracting Officer (SS-30)

EXHIBIT E - PART I

<u>Item</u>	<u>Title</u>	<u>Submittal</u>	<u>Frequency</u>	<u>Copies</u>
1	Technical Progress Report	March 1967	2 months	20
2	Program Management Report	Jan. 1967	Monthly	20
3	Data Management Plan	July 1967	6 months	2
4	Data Accession List	March 1967	2 months	5
5	Data Requirements Document	July 1967	6 months	5
6	Configuration Management Plan	July 1967	6 months	5
7	Model and Subsystem Specifications	July 1967	6 months	5
8	Change Proposal	As required	As required	20
9	Cost Status Reports	Feb. 1967	Monthly	2
10	Schedule Status Report	Feb. 1967	Monthly	2
11	Detail Wcrk Plan	Feb. 1967	As required	10
12	Cost Baseline Report	Sept. 1967	Annual	5
13	Cost & Schedules Control Program	Feb. 1967	As required	2
14	Control Room Data	As requested	As required	5
15	Procurement Program	Feb. 1967	As required	5
16	Value Engineering Program	July 1967	6 months	2
17	Annual Report	Jan. 1968	Annual	20
18	Final Report	Oct. 1970	---	20
19	Maintainability Program	July 1967	6 months	2
20	Airline Maintenance Plan	Dec. 1969	As required	5
21	System Safety Plan	July 1967	6 months	5
22	Training & Training Equipment Program	July 1967	6 months	2
23	Reliability Program	July 1967	6 months	2
24	Quality Control Program	July 1967	6 months	2
25	Quality Assurance Program	July 1967	6 months	2
26	Integrated Test Program	July 1967	6 months	20
27	Facilities Program	July 1967	As required	2
28	Master Program Plan	July 1967	6 months	20
29	High Risk Area Report	Feb. 1967	2 months	10

<u>Item</u>	<u>Title</u>	<u>Submittal</u>	<u>Frequency</u>	<u>Copies</u>
30	Human Engineering Program	July 1967	6 months	2
31	Financial Plan for Future Phases	June 1968	---	30
32	Flash Failure Report	As required	As required	1
33	Economic Report	Sept. 1967	Annual	10
34	Marketing Plan	Sept. 1967	6 months	10
35	Operational Suitability	July 1967	6 months	10
36	Sonic Boom Program	July 1967	6 months	10
37	Sonic Boom Report	July 1967	As required	10
38	Airport & Community Noise Program	July 1967	6 months	10
39	Airport & Community Noise Report	July 1967	As required	10
40	Internal Noise Program	July 1967	6 months	10
41	Airframe/Engine Business Agreement	As revised	As revised	5
42	Airframe/Engine Technical Agreement	As revised	As revised	5
43	Flight Simulation Program	July 1967	6 months	5
44	Flight Test Program	July 1967	6 months	5
45	Weight and Balance Status Report	March 1967	2 months	2
46	Weight and Balance Report	As required	As required	2
47	Coordinated Inlet/Engine Test Plan	July 1967	As required	5
48	Propulsion System Test Plan	July 1967	6 months	5
49	Propulsion System Installation Drawings	Feb. 1967	As required	5
50	Propulsion System Test Report	June 1967	As required	2
51	Systems Test Reports	As required	As required	2
52	Corrective Action Report	As required	As required	2
53	Critical Item Qualification Test Reports	As required	As required	2
54	Flight Test Reports	As required	As required	5
55	Actual Weight and Balance Report	As required	As required	5
56	Weight and Balance Manual	As required	As required	2
57	Operating Restrictions Report	As required	As required	5

<u>Item</u>	<u>Title</u>	<u>Submittal</u>	<u>Frequency</u>	<u>Copies</u>
58	Stability and Control and Handling Qualities Report	As required	As required	5
59	Design Allowables Manual	As required	As required	2
60	Stress Analysis Report	As required	As required	2
61	Proof Test Reports	As required	As required	2
62	Landing Gear Drop Test Report	As required	As required	2
63	In-Flight Temperature Survey Report	As required	As required	2
64	Airplane Performance Demonstration Reports	As required	As required	5
65	Design Loads Reports	As required	As required	2
66	Ground Vibration Survey Report	As required	As required	2
67	Flutter Report	As required	As required	2
68	Wind Tunnel Pressure Model Test Report	As required	As required	2
69	Aerodynamic Data Report	As required	As required	2
70	Aeroelasticity Summary Report	As required	As required	2
71	Performance Analysis Report	As required	As required	5
72	Area and Dimension Report	As required	As required	5
73	Flight Control System Analysis Report	As required	As required	2
74	Inlet/Engine Compatibility Test Report	As required	As required	5
75	Cost Sharing Subcontracts Report	March 1967	Quarterly	2
76	Advance Notice of Intent to Subcontract	As required	As required	3
77	Government Furnished Property and Services	As required	As required	5
78	Incremental Funding Requests	Sept. 1967	Annual	2
79	Program Review Agenda	15 days prior to review	---	2
80	Program Review Minutes	5 days after review	---	2
81	Patent Report	Contract completion	---	3

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<u>Item</u>	<u>Title</u>	<u>Submittal</u>	<u>Frequency</u>	<u>Copies</u>
82	Patent Disclosure	As required	As required	3
83	Notice of Patent Infringement	As required	As required	2
84	Notice of Late Delivery	As required	As required	1
85	Notice of Labor Disputes	As required	As required	2
86	Notice of Damage to Government Property	As required	As required	2
87	Proposed Overhead Rate	June 1967	Annual	2
88	Government Property Inventory Schedules	Contract completion	---	2

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EXHIBIT E - PART II

1. Technical Progress Report  
Summarize program technical accomplishments by work breakdown structure element relating accomplishments to the Detail Work Plan. This will be a continuation of document series D6-18110 submitted during Phase II-C.
2. Program Management Report  
Report significant program management events and include a discussion of schedule and cost summary status. This will be a continuation of document series D6-10141 submitted during Phase II-C.
3. Data Management Plan  
Document V5-B2707-2.
4. Data Accession List  
Provide a listing of all program documents which have been completed during the reporting period.
5. Data Requirements Document  
Provide a listing and definition of the scope of all identified program documents to be developed during Phase III.
6. Configuration Management Plan  
Document V5-B2707-1.
7. Model and Subsystem Specifications  
B-2707 Model Specification  
Document D6-17850  
Communications/Navigation Subsystem Specification  
Document D6A10122-1  
Propulsion Performance Specification  
Document D6A10111-1 (GE) or D6A10112-1 (P&W)  
Aircraft Engine Installation Subsystem Specification  
Document D6A10113-1  
Air Induction Subsystem Specification  
Document D6A10114-1  
Air Induction Control Subsystem Specification  
Document D6A10118-1  
Fire Detection and Extinguishing Subsystem Specification  
Document D6A10115-1  
Starting Subsystem Specification  
Document D6A10078-1  
Accessory Drive Subsystem Specification  
Document D6A10089-1  
Engine Inlet Anti-Icing Subsystem Specification  
Document D6A10117-1

Flight Controls and Hydraulics Subsystem Specification  
Document D6A10120-1  
Electrical Power Subsystem Specification  
Document D6A10119-1  
Environmental Control Subsystem Specification  
Document D6A10121-1  
Aircraft Integrated Data Subsystem Specification  
Document D6A10090-1  
Flight Deck Subsystem Specification  
Document D6A10109-1  
Passenger and Cargo Accommodations Subsystem Specification  
Document D6A10110-1  
Airframe Subsystem Specification  
Document D6A10107-1  
Fuel Subsystem Specification  
Document D6A10116-1  
Landing Gear Subsystem Specification  
Document D6A10108-1  
Ground Support Equipment Requirements Specification  
Document D6A10180-1  
Training Equipment Specifications  
Document D6A10181-1  
Technical Publications Specifications  
Document D6A10182-1

8. Change Proposal

- a. Category I Change Proposal - Provide the Contracting Officer with a description of and justification for any Category I change to the prototype or production airplane objectives or requirements set forth in paragraph D. 2. b of Exhibit A to this contract, including impact of the proposed change on contract cost, performance, delivery schedule and any other provision of this contract.
- b. Category II Change Proposal - Provide the information set forth in Article XV, paragraph c, of the Schedule of this contract.
- c. Contract Change Proposal - Provide the Contracting Officer with a description of and justification for any change to any provision of this contract which does not involve a change to the Model or Subsystem Specifications, including impact of the proposed change on contract cost, statement of work, delivery schedule and any other provision of this contract.

9. Cost Status Reports

Include the following reports or the equivalent:

- a. Management Summary Report - WBS Levels I, II, and III.
- b. Financial Plan and Status Report - WBS Levels I, II, and III.
- c. Cost Category Report - WBS Levels I and II.

- d. Manpower Loading Report - WBS Level I.
- e. Commitment Report - WBS Level I.
- f. Rate Report - A table of historical labor and overhead rate experience.
- g. Indirect Support - A count of the full-time personnel supporting the SST program and not charged direct to the program.

Format and content for these reports will be determined by the mutual agreement of the parties.

10. Schedule Status Report

Provide the following:

- a. PERT/Time computer printout for the Program Management Network sorted by event number, slack and schedule date.
- b. Change pages to the Detail Work Plan for minor schedule revisions which do not require a complete update and reissue of the Detail Work Plan.

11. Detail Work Plan

Document V5-B2707-4.

12. Cost Baseline Report

Documents V6-B2707-1, V6-B2707-2, D6A10276-1 and D6A10276-2.

13. Cost & Schedules Control Program

Document V5-B2707-6.

14. Control Room Data

Various charts and related data utilized in Contractor's Control Room may be requested on an as-required basis for presentation in the FAA Control Room. These data may include such items as the following:

- a. Organizational charts
- b. Airplane sectional breakdowns
- c. Copies of charts used by the contractor for managerial control and presentation.

15. Procurement Program

Document V5-B2707-5.

16. Value Engineering Program

Document V4-B2707-18.

17. Annual Report

Summarize significant progress and expenditure of resources for the report period and appraise progress in terms of the total development program.

18. **Final Report**  
Summarize results of the prototype development program and assess Phase III impact on the total development program.
19. **Maintainability Program**  
Document V4-B2707-15.
20. **Airline Maintenance Plan**  
Provide suggested maintenance plan for use by the airlines on the production airplane.
21. **System Safety Plan**  
Document V4-B2707-6.
22. **Training & Training Equipment Program**  
Document V4-B2707-7.
23. **Reliability Program**  
Document V4-B2707-16.
24. **Quality Control Program**  
Document V4-B2707-17.
25. **Quality Assurance Program**  
Document V4-B2707-21.
26. **Integrated Test Program**  
Document V4-B2707-11.
27. **Facilities Program**  
Document V5-B2707-7.
28. **Master Program Plan**  
Document V5-B2707-3.
29. **High Risk Area Report**  
Identify the areas or items where the Contractor feels the development risk is highest or the outcome is most uncertain. This report will be in narrative form discussing the area or item, the potential impact, alternative solutions, and the work breakdown structure element(s) involved.
30. **Human Engineering Program**  
Document V4-B2707-8.
31. **Financial Plan for Future Phases**  
Provide the information set forth in Article XIII of the Schedule of this contract.

32. Flash Failure Report  
Provide to the FAA, by teletype, notice of test hardware failures which have major impact on the program. Include a description of the test hardware, test conditions, type of failure, preliminary analysis of failure and proposed corrective action.
33. Economic Report  
Present the results of economic analyses and studies of design and performance, market potential, and operating, production, and development costs. The report will include sections on: demand analysis, balance of payments, airline operating cost, investment, financial studies, economics of sonic boom, and growth potential.
34. Marketing Plan  
Provide an evaluation of the current competitive position of the SST and potential customer status. Discuss potential sales and product improvement requirements.
35. Operational Suitability  
Document V4-B2707-1.
36. Sonic Boom Program  
Document V4-B2707-3.
37. Sonic Boom Report  
Provide significant data obtained from the sonic boom program.
38. Airport & Community Noise Program  
Document V4-B2707-4.
39. Airport and Community Noise Report  
Provide significant data obtained from the airport and community noise program.
40. Internal Noise Program  
Document V4-B2707-5.
41. Airframe/Engine Business Agreement  
Document D6A10183-1 (GE) or D6A10184-1 (P&W)
42. Airframe/Engine Technical Agreement  
Document D6A10198-1 (GE) or D6A10199-1 (P&W)
43. Flight Simulation Program  
Document V4-B2707-13.
44. Flight Test Program  
Document V4-B2707-14.

45. **Weight and Balance Status Report**  
Provide a report of the weight and balance status in accordance with FAA document SST 65-13, "Supersonic Transport Weight and Balance Standard," dated September 1, 1965.
46. **Weight and Balance Report**  
Provide detailed weight and balance data in accordance with FAA document SST-65-13, "Supersonic Transport Weight and Balance Standard," dated September 1, 1965.
47. **Coordinated Inlet/Engine Test Plan**  
Document D6A10007-1 (GE) or D6A10007-2 (P&W).
48. **Propulsion System Test Plan**  
Describe tests and analyses to be conducted by the Contractor on the propulsion system.
49. **Propulsion System Installation Drawings**  
Illustrate the general arrangement of propulsion pod assembly.
50. **Propulsion System Test Report**  
Provide reports of significant data obtained from the propulsion system test program.
51. **Systems Test Reports**  
Define conditions and present results of subsystem tests.
52. **Corrective Action Report**  
Provide follow-up to Flash Failure Reports on test hardware failures having major program impact, and indicate the corrective action taken or expected to be taken by the Contractor.
53. **Critical Item Qualification Test Reports**  
Define conditions and present results of critical item qualification tests.
54. **Flight Test Reports**  
Define conditions and present results of flight tests.
55. **Actual Weight and Balance Report**  
Report the actual airplane weight and balance.
56. **Weight and Balance Manual**  
Provide weight and balance data required for airplane loading and airplane flight center of gravity management.
57. **Operating Restrictions Report**  
Provide operational limitations data for the flight test program.

58. **Stability and Control and Handling Qualities Report**  
Provide a report substantiating that the airplane has satisfactory stability and control characteristics and has good handling qualities throughout the entire flight envelope.
59. **Design Allowables Manual**  
Document D-5000, Book 84D1 previously submitted to FAA.
60. **Stress Analysis Report**  
Report stress analyses substantiating the airplane structural design.
61. **Proof Test Reports**  
Report the results of proof tests and define the test conditions.
62. **Landing Gear Drop Test Report**  
Present results of the drop test program conducted to verify the strength characteristics of the landing gear.
63. **In-Flight Temperature Survey Report**  
Define conditions and present results of in-flight temperature tests.
64. **Airplane Performance Demonstration Reports**  
Present performance data and analysis to substantiate the satisfaction of flight performance requirements set forth in Exhibit A, paragraph D. 2. b., of this contract.
65. **Design Loads Reports**  
Provide the assumptions, analysis methods, and magnitudes of the static and dynamic flight and ground loads used in designing the airframe structure.
66. **Ground Vibration Survey Report**  
Provide test results and analysis of the airplane ground shake test program.
67. **Flutter Report**  
Provide a summary of the analytic flutter studies, wind tunnel flutter model test results and correlating flight flutter tests.
68. **Wind Tunnel Pressure Model Test Report**  
Provide the measured loads and load distributions as determined from wind tunnel pressure model testing.
69. **Aerodynamic Data Report**  
Provide a compilation of the aerodynamic coefficients of the airplane (rigid data) based on theoretical and/or wind-tunnel data.
70. **Aeroelasticity Summary Report**  
Present the effects of aeroelasticity on the aerodynamic coefficients of the airplane throughout the flight profile.

71. Performance Analysis Report

Compile the overall aerodynamic performance data based on theoretical and/or wind tunnel data for calculation of airplane performance throughout the mission profile.

72. Area and Dimension Report

Define the airplane geometric characteristics. Present data in a form suitable for use in calculating aerodynamic performance and handling characteristics for the specific design.

73. Flight Control System Analysis Report

Provide a report substantiating that the flight control system satisfies the design objectives.

74. Inlet/Engine Compatibility Test Report

Present test data and analysis for inlet/engine compatibility tests.

75. Cost Sharing Subcontracts Report

Provide the information set forth in Exhibit D of this contract.

76. Advance Notice of Intent to Subcontract

Provide the information set forth in Exhibit B of this contract.

77. Government Furnished Property and Services

Document D6A10360-1.

78. Incremental Funding Requests

Provide the information specified in Article XVI, paragraph A, of the Schedule of this contract.

79. Program Review Agenda

Provide coordinated agenda for scheduled joint program review meetings.

80. Program Review Minutes

Provide minutes and records of joint program review meetings.

81. Patent Report

Provide the information specified in Article XVII, paragraph C, of the Schedule of this contract.

82. Patent Disclosure

Provide the information specified in Article XVII, paragraph B, of the Schedule of this contract.

83. Notice of Patent Infringement

Provide the report specified in Clause 7 of the General Provisions of this contract.

84. Notice of Late Delivery  
Provide the notice specified in Clause 32 of the General Provisions of this contract.
85. Notice of Labor Disputes  
Provide the notice specified in Clause 28 of the General Provisions of this contract.
86. Notice of Damage to Government Property  
Provide the notice specified in Clause 26, paragraph F. 3, of the General Provisions of this contract.
87. Proposed Overhead Rates  
Provide the information specified in Clause 20 of the General Provisions of this contract.
88. Government Property Inventory Schedules  
Provide the schedules specified in Clause 26, paragraph (i) of the General Provisions of this contract.

(See paragraph 6-104,  
Armed Forces Industrial Security Regulation)

DEPARTMENT OF DEFENSE  
**SECURITY REQUIREMENTS CHECK LIST**  
(CLASSIFICATION SPECIFICATIONS)  
(FOR PRIME AND SUBCONTRACTS INVOLVING CLASSIFIED INFORMATION)

(See Section II, Industrial Security Manual for Safeguarding Classified Information)

1. THIS CHECK LIST IS FOR:		2. CONTRACT NUMBER OR OTHER IDENTIFICATION NUMBER (Prime contracts must be shown for all subcontractors)		3. THIS CHECK LIST IS: (See note below)		DATE	4. FACILITY SECURITY CLEARANCE REQUIRED FOR CONTRACT PERFORMANCE OR FOR ACCESS TO CLASSIFIED INFORMATION	
<input checked="" type="checkbox"/> PRIME CONTRACT	a. PRIME FA-SS-67-		<input checked="" type="checkbox"/> ORIGINAL CHECK LIST	b. REVISED CHECK LIST (Supersedes all previous lists)		Jan. 1, 1967	a. TOP SECRET	
	b. SUBCONTRACT (Use Item 15 to identify further subcontracting)			d. SUBCONTRACT			b. SECRET	
	c. INVITATION TO BID OR REQUEST FOR PROPOSAL			e. INVITATION TO BID OR REQUEST FOR PROPOSAL			c. CONFIDENTIAL	
5a. NAME AND ADDRESS OF PRIME CONTRACTOR The Boeing Company Supersonic Transport Division P. O. Box 3733 Seattle, Washington 98124				5b. NAME AND ADDRESS OF COGNIZANT SECURITY OFFICE Defense Contract Administrative Services Region/San Francisco 866 Malcom Road Burlingame, California 94010				
6a. NAME AND ADDRESS OF SUBCONTRACTOR (if applicable)  (Use Item 15 to identify further subcontracting)				6b. NAME AND ADDRESS OF COGNIZANT SECURITY OFFICE				
7. SECURITY REQUIREMENTS CHECK LIST FOR SUBCONTRACTING FROM THIS <input checked="" type="checkbox"/> PRIME CONTRACT <input type="checkbox"/> SUBCONTRACT WILL BE APPROVED BY  a. MILITARY ACTIVITY Federal Aviation Agency Washington, D. C. 20553				6. DEFENSE DOCUMENTATION CENTER  a. REQUESTED b. APPROVED				
b. ADDRESS				c. FIELD OF INTEREST REGISTER ISSUED				

9. GENERAL IDENTIFICATION OF THE PROCUREMENT FOR WHICH THIS CHECK LIST APPLIES (If classified, complete this item by separate correspondence)

Development of Supersonic Transport Aircraft - Phase III

Items of information checked below pertain solely to engines and not to airframe designs.

10. PROPOSED PUBLICITY RELEASES SHALL BE SUBMITTED FOR APPROVAL PRIOR TO RELEASE  DIRECT  THROUGH (Specify):

Federal Aviation Agency, Supersonic Transport Development, SS-30  
800 Independence Avenue, S. W., Washington, D. C. 20553

TO THE OFFICE OF SECURITY REVIEW, OFFICE OF THE SECRETARY OF DEFENSE FOR REVIEW IN ACCORDANCE WITH THE INDUSTRIAL SECURITY MANUAL.

11. RESTRICTED DATA IS/IS NOT INVOLVED IN THIS CONTRACT. (If involved, check AFIC/DOD Classification Guide)

NOTE: Original Check Lists (Item 3a) are authority for contractors to mark classified information. Revised and Final Check Lists (Items 3b and c) are authority for contractors to regrade the regraded classified information. Such actions by contractors shall be taken in accordance with the provisions of paragraph 7 of the Industrial Security Manual.

DD FORM 254  
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PAGE 1 OF 5 PAGES

12. INFORMATION PERTAINING TO PERFORMANCE CHARACTERISTICS, TEST DATA AND DESIGN	TOP SECRET	SECRET	CONFIDENTIAL (Modified Handling Authorized)	UN-CLASSIFIED
<b>a. ACCURACY:</b>				
(1) Not Applicable				
(2)				
<b>b. ALTITUDE:</b>				
(1)				
(2)				
<b>c. COUNTER COUNTERMEASURES CAPABILITY:</b>				
(1) Not applicable				
(2)				
<b>d. DEPTH:</b>				
(1) Not applicable				
(2)				
<b>e. DESIGN INFORMATION:</b>				
(1) Detailed design information of an advanced nature			X (See item 15-1)	
(2) Internal engine thermodynamic performance			X	
<b>f. FORMULA OR MATERIAL:</b>				
(1)			X (See item 15-2)	
(2)				
<b>g. FUEL/PROPELLANT:</b>				
(1) TYPE				X
(2) CONSUMPTION				X
(3) CAPACITY Not Applicable				
(4)				
<b>h. LETHALITY/CRITICAL EFFECTS:</b>				
(1) Not Applicable				
(2)				
<b>i. MANEUVERABILITY:</b>				
(1)				X
(2)				
<b>j. OPERATIONAL READINESS (A/ or) TIME/TIME CYCLE:</b>				
(1)				X
(2)				
<b>k. ORBIT/TRAJECTORY:</b>				
(1) Mission profile				X
(2)				
<b>l. RANGE:</b>				
(1)				X
(2)				
(3)				

NOTE: For definitions of terms, see Industrial Security Manual, Section II, or Armed Forces Industrial Security Regulation, paragraph 6-104.

Information pertaining to classified contracts or projects, even though such information is unclassified, shall not be released for public dissemination except as provided by the Industrial Security Manual.

12. INFORMATION PERTAINING TO PERFORMANCE CHARACTERISTICS, TEST DATA AND DESIGN		TOP SECRET	SECRET	CONFIDENTIAL <small>Declassified Item Listed in Item 15-3</small>	UNCLASSIFIED
<b>a. RELIABILITY:</b>	(1)				X
	(2)				
<b>b. RESOLUTION:</b>	(1) Not applicable				
	(2)				
<b>c. SIGNATURE CHARACTERISTICS:</b>	(1)				X
	(2)				
	(3)				
	(4)				
<b>d. SPEED/VELOCITY:</b>	(1) MAXIMUM				X
	(2) CRUISING				X
	(3) TAKE-OFF OR LAUNCHING				X
	(4) LANDING				X
	(5) ACCELERATION AND/OR DECELERATION				X
	(6)				
<b>e. SYSTEM CAPACITY:</b>	(1) Not applicable				
	(2)				
<b>f. TERMINAL BALLISTICS:</b>	(1) Not applicable				
	(2)				
<b>g. THRUST:</b>	(1) CLASS				X
	(2) SPECIFIC				X
	(3) SPECIFIC Fuel Consumption				X
<b>h. VULNERABILITY</b>	(1) Not applicable				
	(2)				
<b>u. DOCUMENTATION</b>					
(1) Status and Progress Reports				X (see Item 15-3)	
(2) Technical Reports				X (see Item 15-3)	
(3) Model and Performance Specifications				X (see Item 15-3)	

NOTE: For definitions of terms, see Industrial Security Manual, Section II, or Armed Forces Industrial Security Regulation, paragraph 6-104.

Information pertaining to classified contracts or projects, even though such information is unclassified, shall not be released for public dissemination except as provided by the Industrial Security Manual.

15. END ITEM PRODUCED UNDER CONTRACT	TOP SECRET	SECRET	CONFIDENTIAL (Modified Handwriting Authorized)	UN-CLASSIFIED
1. CLASSIFICATION OF END ITEM			X (see Item 15-4)	
2. EXTERNAL VIEW				X
3. MILITARY APPLICATION				
4. NUMBERS CONTRACTED				X
5. PRODUCTION AND PROGRAM SCHEDULES				X
6. RATE OF DELIVERY				X
7. NUMBERS DELIVERED				X
8. DEGREE OF PROTECTION IN TRANSIT			X (see Item 15-4)	
9. UNIT COST				X
10. Engine weight				X
11. ADDITIONAL (Attach additional sheets, if necessary)				
a. External Mockups				X
b. Models/Hardware			X (see Item 15-1)	
c. (continued on attached sheet)				
12. REMARKS (Attach additional sheets, if necessary and continue paragraph designation)				
<p>1. As a general guideline, all data revealing (1) engine internal thermodynamic performance, or (2) detailed design information of an advanced nature, is classified CONFIDENTIAL. However, manufacturing drawings, layouts, and engine parts, which do not directly identify the items as SST engine components, may be treated as unclassified.</p> <p>2. Classification applies only to (1) new formulas and materials developed under this program, representing advanced state-of-the-art, or (2) formulas and materials which are classified under military programs.</p> <p>3. Documentation is to be classified according to content, in accordance with the guidelines contained herein.</p>				
(continued on attached sheet)				
<b>REQUIRED DISTRIBUTION:</b> <input checked="" type="checkbox"/> PRIME CONTRACTOR (Item 5a) <input checked="" type="checkbox"/> COGNIZANT SECURITY OFFICE (Item 5b)  <input checked="" type="checkbox"/> DIRECTOR, FEDERAL BUREAU OF INVESTIGATION <input checked="" type="checkbox"/> WASHINGTON, D. C. (ONLY FOR ITEMS 10 & 11) <i>(4 COPIES)</i>		<b>REFER ALL QUESTIONS PERTAINING TO THIS CHECK LIST TO THE APPROVING OFFICIAL BELOW</b>  <b>FORGOING SECURITY REQUIREMENTS CHECK LIST APPROVED BY DEPARTMENT OF DEFENSE CONTRACTING OFFICER OR HIS REPRESENTATIVE.</b>  <b>SIGNATURE</b>  <b>TYPED NAME AND TITLE OF APPROVING OFFICIAL</b>  <b>CONTRACTING MILITARY ACTIVITY AND ADDRESS</b> <b>Federal Aviation Agency</b> <b>800 Independence Avenue, S. W.</b> <b>Washington, D. C. 20553</b>		
<b>ADDITIONAL DISTRIBUTION:</b> <input checked="" type="checkbox"/> RTD:WPAFB, Ohio <input checked="" type="checkbox"/> NASA, Washington, D. C.				

Information pertaining to classified contracts or projects, even though such information is unclassified, shall not be released for public dissemination except as provided by the Industrial Security Manual.

DD FORM 254 CONTINUATION SHEET

Confidential

Unclassified

14. ADDITIONAL (continued)

c. Type of Engine Cycle	X
d. General Non-Dimensional Material Schematic of Engine without cooling air flows	X
e. Turbine inlet temperature	X (see Item 15-5)
f. Overall engine performance; including thrust, specific fuel consumption, air flow rate, fuel flow rate, rotor speed(s), exhaust gas temperature, maximum allowable power extraction and air bleed, air bleed pressures and temperatures, effects on engine performance of power extraction and air bleed, and secondary air flow rates; over the complete operating envelope.	X
g. Type of fuel and lubricant	X
h. Fuel and lubricant fluid flow schematics	X
i. Servicing features	X
j. Internal thermodynamic details; including actual metal temperatures, internal air cooling flow schematics, air cooling flow rates and temperatures, etc.	X
k. Engine operating envelope, including maximum transients and light-off envelope (primary engine and augmentor)	X

15. REMARKS (continued)

4. Classification applies only when engine is disassembled to the extent that classified design information is revealed.
5. Specific turbine inlet temperature is classified; however, unclassified reference may be made to "above 2000° F Class."